

# COMMERCIAL CAR JOURNAL

THE MAGAZINE FOR FLEET OPERATORS

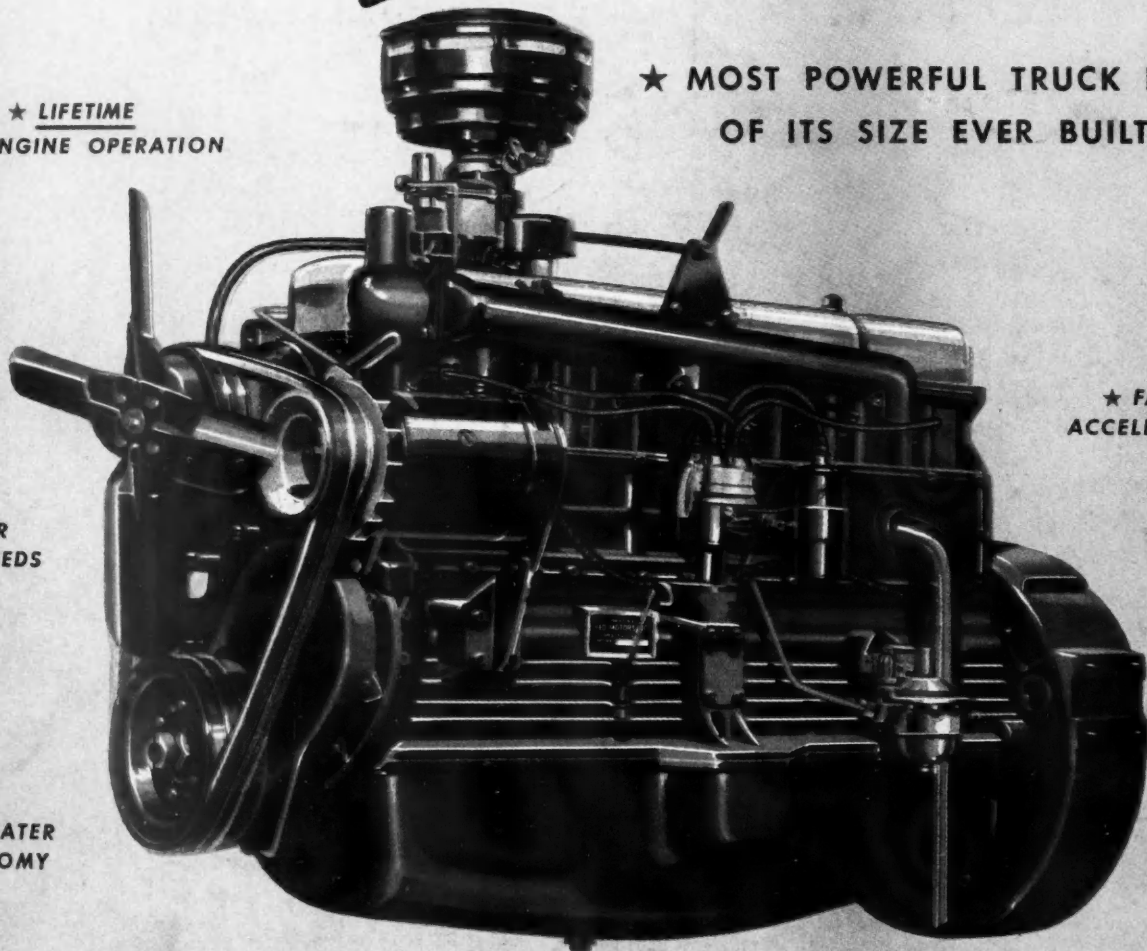
JULY 1949

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## Announcing **REO** *GOLD COMET* **POWER**

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OF ITS SIZE EVER BUILT!\*



★ GREATER  
HIGHWAY SPEEDS

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ACCELERATION

★ GREATER  
ECONOMY

\*The new Reo Gold Comet engine of 331-cubic-inch displacement develops more usable horsepower than any other six- or eight-cylinder gasoline truck engine of comparable displacement. See your Reo dealer for full information and demonstration.

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## OVERLAND HAULERS:



Dollars Are  
Important  
to You

Dollars saved are dollars earned. So why shouldn't you save every dollar you can . . . on *delivery* costs? Dodge "Job-Rated" trucks are built to do just *that*.

They're priced with the lowest. They're built *to fit* your particular hauling needs. They stay *out* of the repair shop and *on* the job . . . saving money every mile you drive them.

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So, if dollars still count in *your* business, see your Dodge dealer. Ask him to recommend the right "Job-Rated" truck for your business. Remember . . . only Dodge builds "Job-Rated" trucks.

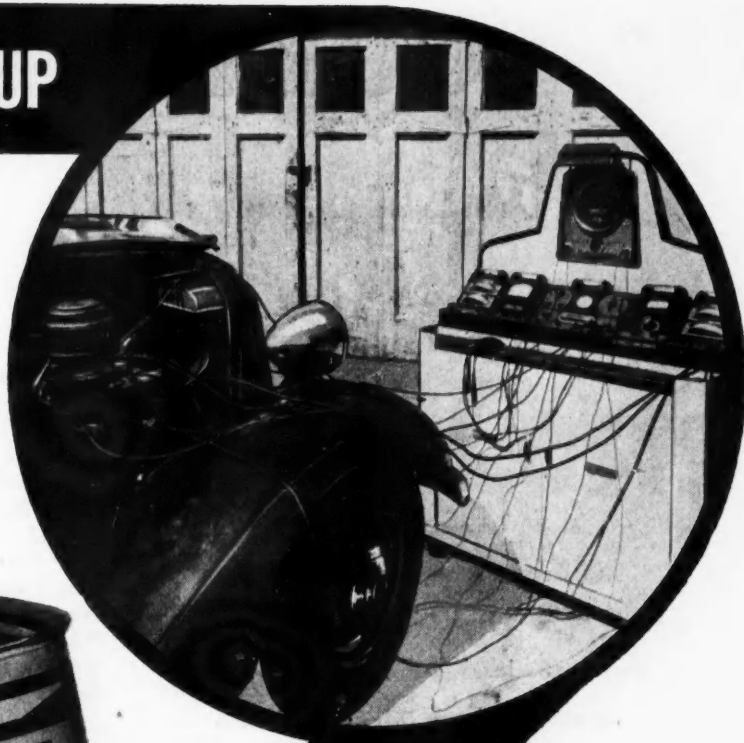


For the good of your business—

Switch to **DODGE**  
"Job-Rated" **TRUCKS**



**BEFORE YOU TUNE-UP**



**...USE THIS**

First, add one quart of Permatex Toon-Oyl to crankcase oil. It will dissolve sludge and gum binders that interfere with the smooth operation of valves, piston rings, oil lines and oil screens.

Then you'll have a clean engine... ready for accurate mechanical adjustments!

**PERMATEX COMPANY, INC., BROOKLYN 29, N. Y.**

# COMMERCIAL CAR

Vol. LXXVII Philadelphia, July, 1949 No. 5

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## CCJ Reader Digest

### Unit Rating Plan

To long-distance-petroleum-hauler Collett of Salt Lake City goes credit for a most unusual plan for stimulating drivers. Drivers are teamed with regularly-assigned trucks to form a unit; then the unit is rated for both economy and safety of operation. The pay-off is a monthly cash bonus for nearly all drivers, graduated according to their performance record. See page 67.

### Trailer Tricks

Our fourth and final article on Watson Brothers' operations deals with the trailer shop. Among highlights, straightening channel iron, rebuilding bellcranks, installing dual trailer brake systems . . . all at cash saving. See page 70.

### Merchandising Safety

Last month Merchandising Professor Bedford laid down the important points for a successful safety contest. This month we have complete details of just such a contest now in operation in the Northwest. Begins on page 74.

### Road Servicing Decentralized Fleet

After dividing its 150 dump trucks among 11 widely scattered garages, Consumers Co. found road servicing a problem. But not for long. Two completely-equipped service trucks with mobile telephones do the trick. See page 76.

### Spark Plug Murder

Fouls aren't limited to baseball. This latest in the "Murder" series illustrates what happens to spark plugs when carbon, heat, gas and oil residues, inefficient engines and even careless mechanics are turned loose. See page 78.

# the road to Lower Maintenance Costs

**Starts with the tougher,  
longer-lasting chassis lubricant—  
Texaco Marfak**

FROM the moment *Texaco Marfak* takes over the protection of bearings, maintenance costs come down. This most famous of all chassis lubricants stays on the job through the heaviest, roughest service . . . keeps dirt and rust-forming moisture away from bearing surfaces. *Texaco Marfak* assures extra hundreds of miles of full protection . . . longer life for all chassis parts.

In wheel bearings, use *Texaco Marfak Heavy Duty*. It seals itself in (won't leak onto brakes!), seals out dirt, protects against rust and wear . . . requires no seasonal repacking.

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The Texas Company, 135 East 42nd Street,  
New York 17, New York.

## Lubricants and Fuels

FOR THE TRUCKING INDUSTRY



# Detroit Dispatch



by **LEONARD WESTRATE**

CCJ Detroit News Editor

**What do valve rotators have to do with sulphur in gasoline?**

**Know about new Ford and Dodge modifications? . . . GMC prices?**

**What's the latest wrinkle in service warranties for trucks?**

## Rotators Lick Valve Troubles

GMC has licked the problem of valve seat deposits caused by sulphur in the fuel in certain sections of the country by installing valve rotators on its 270 engine. The trouble was reported from certain sections of the East and Mid-West and did not occur at all in the South, indicating that the fuel in those particular locations and not engine design was at fault. Use of the rotators, similar to those used in the larger series, cleared up the trouble. The difficulty has been most prevalent in trucks that are operating at maximum load and under conditions of long sustained driving at or near full throttle. Other manufacturers have reported similar difficulties.

## More Route Van Models

Further elaboration on Dodge's plan for lower-priced additions to the Route Van line shows that five models in 102, 117, and 142 in. wheelbases will be offered to buyers who want to provide their own special bodies. The chassis will be furnished with a front section which includes hood, front fenders, windshield, side quarter windows, front side panels and side door posts. An additional ten stripped down panel body models will be offered without such features as insulation, dome lights and inner panels; Five of them will be available without fluid drive.

## Newest Army Contracts

Three truck producers have been awarded contracts for military vehicles by Army Ordnance. Reo was the successful bidder on an order for 5000 2½-ton 6 x 6 military trucks. Willys-Overland has been given an order for 2500 Jeeps and spare

parts amounting to \$12 million. Improvements in design make it possible for the new Jeeps to ford streams while completely submerged. Dodge Truck Div. of Chrysler will supply 4000 ¾-ton 4 x 4 trucks.

## Ford Modifies F-7s & 8s

Ford has made several "running changes" in its F-7 and F-8 series. On the F-7, the Timken 16-¼ x 3-½ brake formerly used has been replaced with the Wagner 15 x 5 units. They are of the dual cylinder type, the same as is used on the F-8. Frame section modulus on the F-7 and 8 has been increased from 9.23 to 13.83 by the use of an extra inside member to give a double channel frame. Cross members are riveted through the reinforcing section. Frame strength has been increased nearly 50 per cent by the change. Major engine modifications include replacement of the hydraulic valve lifters with easily adjustable positive action solid lifters and adoption of Eaton free valves which are so designed that they are free to rotate thus reducing lead or sulphur deposits on valve seats.

## Limited Service Warranty

A Detroit Dodge dealer has introduced a new type of service warranty for trucks which he is selling to truck dealers throughout the country. Essentially the guaranty, which is sold to the operator for from \$15 to \$25 a unit depending upon the type, offers protection for the first 25,000 miles of service against loss from major mechanical failures caused by defective material, workmanship or abnormal wear. Tires, batteries, electrical system and other minor engine parts, brakes, motor tune-ups and body elements are specifically

exempted. The owner also is required to bring the truck into the dealership at specified intervals for inspection, lubrication, oil change and other maintenance which is charged for at regular rates. The guaranty also requires that the truck shall not be loaded over its rated service capacity. Generally coverage is limited to trucks up to 1½-tons capacity.

## GMC Prices Up A Little

GMC is planning to make no formal announcement of prices on its new truck line just introduced. Prices, however, will be "somewhat higher" even when allowing for equipment which now is standard but was optional previously. Higher prices are accounted for by tooling and other costs incident to the model change.

## 1½-Ton Forward Drive

Ford now is offering on special order a forward-drive parcel delivery chassis in its F-5 1½-ton model. It is available with windshield and front end sheet metal, and eliminates necessity for the user who wants a heavier unit than the conventional forward control chassis to make a conversion on the regular 1½-ton chassis.

## Light Trucks Now 67%

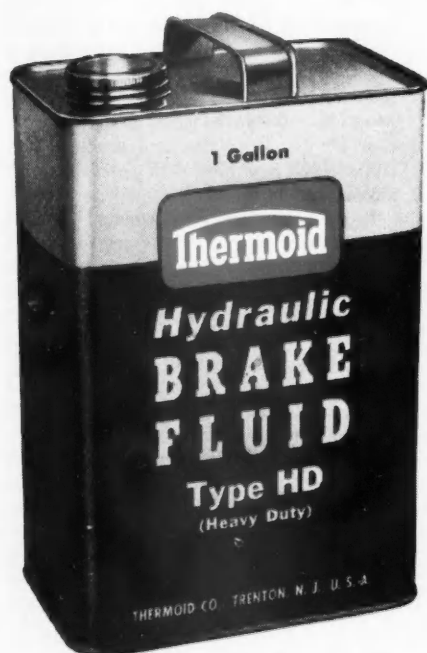
Figures for the first four months of this year show that factory sales of trucks have declined a little less than 8 per cent, under the same period in 1948. However, a breakdown shows that the relatively small decline from last year is accounted for by the large increase in light truck sales. Last year light jobs accounted for 55 per cent of the volume, but this year it has increased to 67 per cent. The biggest drop was suffered by the light-heavy category which was off 53 per cent. Heavy-duty trucks were off 28 per cent, and the medium-weight jobs were down 27 per cent. Although no accurate figures are available, it is believed that currently production is running well over 70 per cent light jobs. Even so, dealers handling both automobiles and trucks are suggesting that factory production schedules be revised to include more light and panel trucks in place of heavier units which have become increasingly hard to sell. Manufacturers who were not so optimistic a few weeks ago now are coming around to the view that the domestic market will take a million trucks this year.

## "Vital Statistics"

"Automobile Facts," publication of AMA, has some interesting statistics about the size and importance of the truck industry in its June issue. Here are a few: More than 1.2 million jobs have been added in the U. S. trucking field in the past two years, bringing total employment to a new high of 6.6 million. More than 7½ million trucks last year traveled about 73 billion miles, compared with 5 million trucks and 55 billion miles traveled in 1941. Freight hauled jumped from 5.6 billion in 1941 to over 8 billion tons in 1948, a 43 per cent

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# Thermoid Line



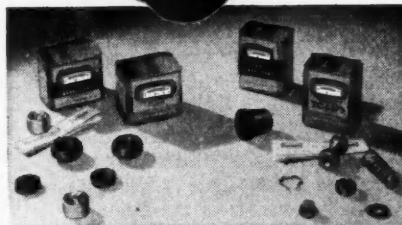
## Heavy Duty Hydraulic Brake Fluid

Thermoid Heavy Duty Brake Fluid equals or exceeds SAE specifications. It's SAFE—will not harm rubber or metal parts of the brake system, and will not swell rubber cups.

Flows freely at  $-60^{\circ}\text{F}$ ; boiling point is  $300^{\circ}\text{F}$ . Assures constant, dependable hydraulic braking in all kinds of weather.

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Duty  
Service



Now—Thermoid, the first name in brake linings offers for regular and heavy duty applications the very latest engineering advances in hydraulic brake parts. Complete master and wheel cylinder assemblies as well as individually packaged master and wheel cylinder repair kits are regular items of the line. They're new — complete — second to none!

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Brake Linings • Clutch Facings • Fan Belts  
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Car Mats • Thermoid Precision Process Equipment

**Thermoid Company, Trenton, New Jersey**



by GENE HARDY

CCJ Washington Correspondent

**How will "live test" benefit truckers? . . . Know the latest on union drives? . . . Delivered pricing? . . . and Post Office trucks? . . . What's hopeful about the Senate's newest transport study?**

### Live Test for Highways

A partial solution to the current controversy raging over the load limits that can be safely carried by the nation's highways might eventually come from the Highway Research Board's Committee on Economics of Motor Vehicle Sizes and Weights, provided that group goes ahead with its tentative plans to conduct a "live test" of highways.

The committee is currently completing its study of the data resulting from Phase 1 of its work—the Pilot Tests on the Pennsylvania Turnpike. Phases 2 and 3 will involve the actual cost of operating vehicles and the cost of highway construction. The highway test would come under the latter phase, and would involve road tests of vehicles selected from the traffic flow to travel over specially constructed stretches of highway paralleling regular routes.

In a recent discussion of the mechanics of pavement construction, officials of the Public Roads Administration revealed that they would be willing to spend up to \$1 million on such highway tests in an attempt to learn what actually happens to road surfaces when specific loads are applied.

### Drive to Unionize Mechanics

The International Association of Machinists is now conducting a vigorous drive

to organize an estimated 300,000 unorganized automotive machinists, mechanics, body men and painters. This union has been organizing such workers for more than 15 years and now estimates it has among its membership about 100,000 such workers. The drive, which has been gaining momentum since the first of the year, is aimed at what the union calls the "largest remaining group of unorganized skilled workers." It was decided upon at the union's annual convention last September and is directed by Howard Tausch, Cleveland, who has come to Washington as coordinator of IAM automotive dept.

The 300,000 workers which the union hopes to organize are employed by fleet owners, new car dealers and truck manufacturers' factory branch sales and service units. The fleet owners are estimated to employ about 100,000 of the total. The drive will eventually cover 93 of the largest cities in the country. Current efforts are strongest in Boston and Kansas City.

The union is not concerned with one or two-man shops but is aiming at shops employing eight or more workers. Average employment by the groups listed above of workers of this type is estimated at about 8 per unit. The union hopes to get for the unorganized workers the benefits which it claims are now being employed by the organized members of the trade, including weekly guaranteed wages, paid holidays and vacations, shift differentials and on-the-job seniority.

### Good Chance for Price O.K.

Legislative authority for major industries, such as steel and cement, to again absorb freight and sell on a delivered price basis seemed almost certain as this issue went to press. Legislation which would permit these practices on an individual, non-collusive basis had passed the Senate in early June and by the end of the month was awaiting House action.

The immediate effect of such legislation would be felt by transporters of steel and cement, these industries having switched to an f.o.b. mill method of selling as a result of the Supreme Court decision in the Cement Institute Case (January, CCJ, page 10).

Under an f.o.b. mill system greater ton-nages move by truck since, with the manufacturer no longer equalizing the freight costs, it becomes more profitable for the buyer to restrict his purchases to a narrower and more advantageous freight rate area.

### P.O. Takes to Highways

The Postmaster General in his annual report for fiscal year 1948 indicates clearly the Department's increasing dependency on truck transportation for the carrying of mail on both long and short hauls. For example, substantial success in the operation of the first long-haul trucking contract which was placed in operation about a year ago is reported.

In addition, the Department is taking into consideration such factors as proper loading platforms and storage space so that future post offices would be designed to accommodate heavy truck movements. Increased highway post office service is also being put into operation in many parts of the country, particularly in areas where railroad transportation has been withdrawn or curtailed.

The Department's fleet of 11,136 trucks operating in 1561 cities performed 30,143,812 hours or 116,678,591 miles of service in fiscal 1948. Increased volume of mail, the demand for improved postal facilities, and part time use of smaller trucks for special delivery service, increased operations by 1,498,178 hours or 1,472,700 miles over the previous year.

### Trucks, No. 1 Army Supplier

In any future war the Army will rely more heavily on truck transportation in the communications zone (supply area behind the fighting line) than ever before. A textbook used by advanced supply officers, and made available to COMMERCIAL CAR JOURNAL, emphatically states: "chief reliance will probably be on motor vehicles capable of full cross-country travel, and designed to operate successfully in polar regions at temperatures of 70 deg. below zero, in desert regions, and in tropical jungles. They will also operate on very soft or thawing ground and may be amphibious. Roads will be used when possible, of course, but they will all be subjected to attack with long range weapons, and cannot be counted on.

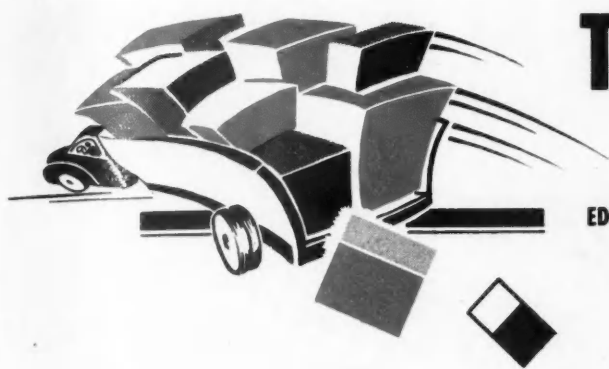
"Cargo planes and helicopters will undoubtedly be used for transportation with

(TURN TO PAGE 128, PLEASE)



# The OVERLOAD

EDITORIAL COMMENT by GEORGE T. HOOK - EDITOR



## Western Truck Operators Should Not Lend Themselves to PRA and AASHO 18,000-Lb Axle Load Propaganda

TRUCK OPERATORS in the western states seem to be well satisfied with an 18,000-lb axle load because they are permitted combinations and lengths which enable them to attain economical payloads.

In any proposal to make the 18,000-lb axle load uniform in all states, western operators should recognize the 18,000-lb limit for what it is and be more considerate of the problem facing their brethren in the more populated states.

In many of the latter states, with their greater traffic density, vehicles and combinations of the size legal in the west and recommended under the Uniform Code of the American Association of State Highway Officials are not permitted. East of the wide-open spaces the public is decidedly prejudiced against "large" combinations. A 45-ft tractor-semitrailer combination is a "big boxcar," a "freight train." The chances of getting legislation that would permit 60-ft combinations in many of these states is extremely remote. The only alternative for eastern operators to procure economical payloads is to seek higher axle loads.

Furthermore, considering the present state of the art of highway construction there is no reason why western truck operators should give any support to the propaganda that an 18,000-lb axle load should be the uniform maximum for the entire country.

Despite the advocacy of 18,000 lb by the Public Roads Administration and by the American Association of State Highway Officials there is no scientific basis for such an axle load limit. As far as the PRA is concerned it is nothing more than an expertly ignorant guess. The PRA does not know what maximum loads particular types of pavements will stand. COMMERCIAL CAR JOURNAL's Washing-

ton Bureau reports in this issue that "In a recent discussion of the mechanics of pavement construction, officials of the Public Roads Administration revealed that they would be willing to spend up to \$1 million on highway tests in an attempt to learn *what actually happens to road surfaces when specific loads are applied.*"

Isn't it fantastic that the PRA has spent and is spending millions on highways and just now talking about spending a measly million on research that is absolutely basic in order to get maximum value for every dollar spent?

So far as the American Association of State Highway Officials is concerned, its advocacy of 18,000 lb is a pure, unadulterated, political compromise. It was a majority decision based on votes not on sound engineering principles and facts.

Why should truck operators seek any agreement on 18,000 lb if highway builders themselves dispute that it is a valid maximum? The Engineer Director of the New Jersey Bituminous Concrete Association says that "A load of 18,000 lb per axle is unworthy of second thought on well-designed flexible pavements." The association has scores of examples of bituminous concrete highways with a heavy traffic of trucks carrying more than 18,000 lb per axle, whose original cost and cost of maintenance shame such modern dream highways as the toll-charging Pennsylvania Turnpike.

The art of highway construction is still so controversial, the lack of fundamental highway research so obvious and PRA so patently carrying the torch for an unscientific compromise that western operators are neither serving their own best interests, nor the economic interests of the nation as a whole when they permit themselves to be used as supporters of 18,000-lb axle load propaganda.

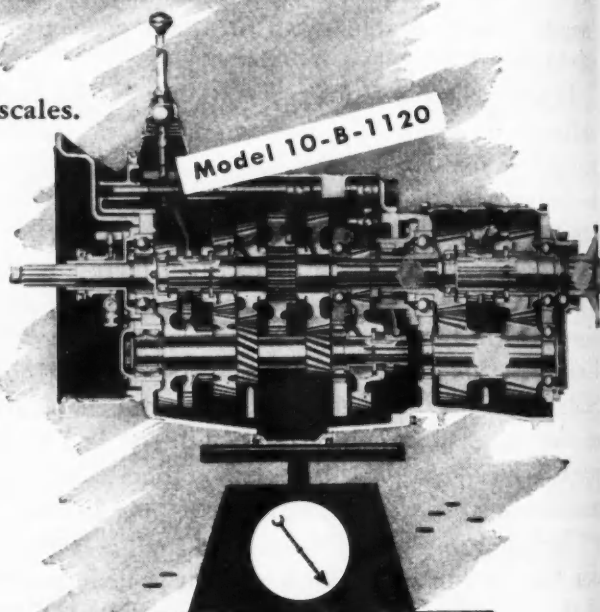


It's "shorter on the outside,  
bigger on the inside," lighter on the scales.  
For big trucks, on or off the highway,  
Fuller's 10-A-1120 or 10-B-1120 saves  
weight over the traditional combination  
of unit and auxiliary transmission . . .  
saves installation length . . . saves cost  
of supplementary shafts and joints.  
These unit-mounted gear boxes, with  
all of the overall reduction and the high  
top speeds of 12 or 15 speed combinations,  
weigh only 936 pounds . . . install in  
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usable ratios.

Fuller's heavy-duty units are built with  
oversize ball and roller bearings . . .

helical gearing in all forward speeds and  
full-floating mounting for auxiliary drive gear.

Ask the man who shifts a Fuller about  
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**Engineered for Replacement Service**



*Full-Spark*

**"THE  
POWER  
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**Finer Performance Four Ways:**

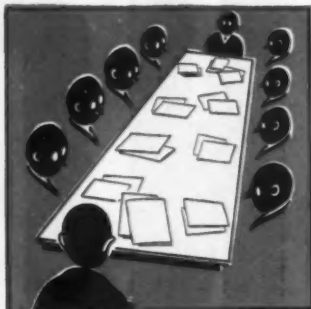
- Quicker starting
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- Heatrol insulator assures better motor operation.



**Companions in Automotive Leadership**

**GLOBE-UNION INC., MILWAUKEE 1, WISCONSIN**





## CONFERENCE C O R N E R

Continued from Page 27

requires not only the use of proper equipment but also considerable skill and knowledge on the part of the operator. It is very difficult, if not unwise, to specify exactly what type of equipment must be used under any and all circumstances since the skill and knowledge of the operator may be such that the inadequacy of tools used becomes of minor importance."

### Use Feeler Gages for Initial Setting

by William Michel

*Springfield Electrical  
Specialties, Inc.*

Feeler gages are satisfactory for making the initial adjustment of contact point gap provided that the gaps are subsequently adjusted to achieve the dwell, or cam angle specified when the units are running as this condition is influenced by the amount of wear in the distributor bearings. Very often the skill and finesse of the mechanic is not sufficiently developed to assure accuracy with feeler gages, except for the initial setting and should be followed by checking the dwell on test units provided for this purpose. This is particularly true of the Ford 8 cylinder cars up to 1949

"Any of the special wrenches found on the market for purposes of contact installation are generally satisfactory; however, the feeler gages for setting the contact point gaps, should be individual pieces, rather narrow, about 1/8-in. wide and not over 2 to 3 in. in length. We are not partial to using feeler gages in clusters or those which are fastened to other tools or wrenches since their sensitivity is destroyed

"Feeler gages are satisfactory for making the initial adjustment of contact point gap provided that the gaps are subsequently adjusted to achieve the dwell, or cam angle specified when the units are running as this condition is influenced by the amount of wear in the distributor bearings. Very often the skill and finesse of the mechanic is not sufficiently developed to assure accuracy with feeler gages, except for the initial setting and should be followed by checking the dwell on test units provided for this purpose. This is particularly true of the Ford 8 cylinder cars up to 1949

by any increase in weight or bulk. We heartily recommend special tools designed to fit the various groups of distributors rather combinations which hinder the mechanic and result in inaccurate adjustments."

### Use a Dial Indicator for Most Accurate Setting

by A. J. Hess

*Sales Department  
Holley Carburetor Co.*

especially if the points happen to be pitted."

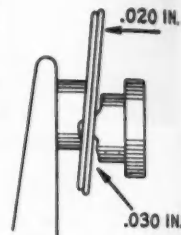
"The use of a feeler gage for adjusting distributor contact points is satisfactory when new contact points are to be adjusted. However, when used points are to be checked, the use of the dial indicator is the most reliable and accurate, especially if the points happen to be pitted."

### We Recommend Use of the Oscillograph

by Alfred Roffman

*Advertising Manager  
Standard Motor Products,  
Inc.*

gage shows. This is especially true in the case where old points are being adjusted, as can be seen from the illustration. Here the gage shows a gap of .020, while the point are really .030 apart, changing the cam angle from 34 to 25 degrees and resulting in excessive arcing and burning."



### Electrical Cam Angle Reading Is Best

by Fred H. Geyer

*Vice President  
C. E. Niehoff & Co.*

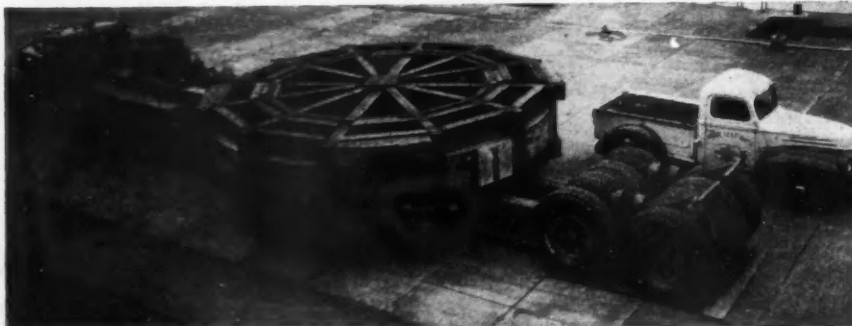
combined with the effect that mechanics have different ideas as to how a gage should slide, make their use questionable.

"If used points are being reset, there are also hollows and high spots to be considered which would render a feeler gage adjustment incorrect. An electrical cam angle reading is positive and quick."

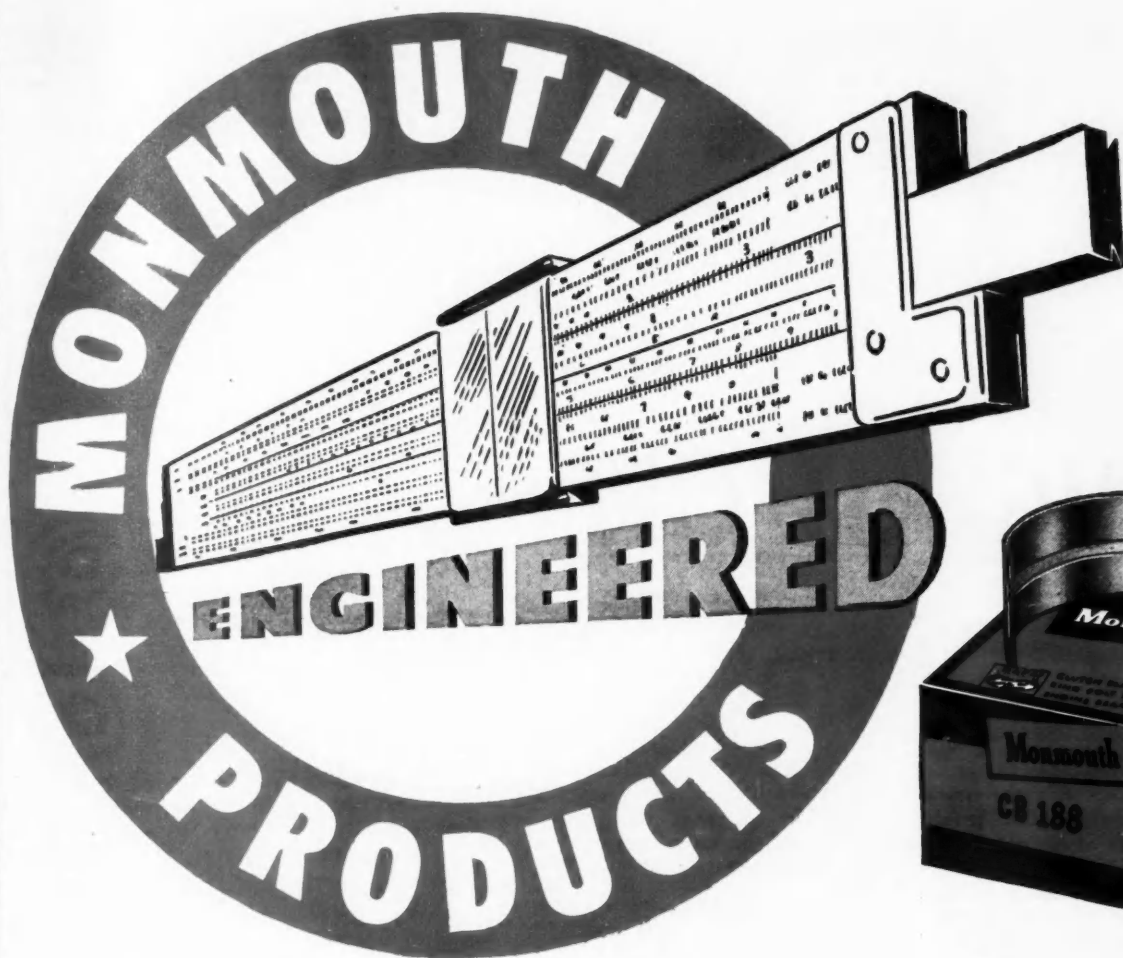
"As far as we can determine feeler gages cannot be considered too satisfactory for adjusting distributor points.

"It would seem than almost impossible for a mechanic to align contacts perfectly and this combined with the effect that mechanics have different ideas as to how a gage should slide, make their use questionable.

### The Long Way 'Round



Because highway commissioners blocked overland delivery of this 97-ton Atom-Smashing coil between the Brooklyn Navy Yard and the Carnegie Institute of Technology in Saxtonburg, Pa., it was shipped 3600 miles by water via the Gulf of Mexico, and the Mississippi, Ohio and Allegheny rivers. Even then it had to be trucked 33 miles from Kittanning, Pa. Pittsburgh papers reported "the coil, carried on I-beams equipped with heavy-duty 14.00x24 General tires, was trucked without damage to the highways and they were secondary roads."



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**M**ONMOUTH Replacement Bearings are made by Cleveland Graphite Bronze Company—in the world's largest, most modernly equipped engine bearing factory. Millions of dollars spent in engineering research on bearing problems by Graphite Bronze has resulted in world-wide acceptance of its products as tops—no dissenting opinion.

You can buy and use these same bearings, identical in design and construction with original equipment bearings, in your own

service work when you specify Monmouth—each bearing or set of bearings is specifically designed and engineered for the type of performance required of the motor in which installed.

Minute-Man service on Monmouth Bearings and chassis parts is provided by N.A.P.A. jobbers coast-to-coast.

When you can get the advantages of engineering research that leads the field why be satisfied with less? Specify Monmouth Bearings for perfect performance.



*Your NAPA Jobber is a Good Man to Know!*

MONMOUTH PRODUCTS COMPANY, Cleveland 3, Ohio

FOR ENGINE BEARINGS  
CLUTCH PLATES AND PARTS  
CHASSIS PARTS

**Monmouth**

Trade Mark

*is the name*



# LAUGH IT OFF

The president of Fleety Fleet Motor Express was entertaining a motor transportation big-wig from the British Isles by showing him some of the wonders of the American continent. Proudly he took his English guest to view Niagara Falls. During his inspired description of the falls, the Britisher displayed a somewhat bored countenance.

"What's the matter, Lord Bottomplush? Aren't you impressed by our great American natural wonder?"

"I would be more impressed," answered the visiting trucker, "if the water fell up instead of down."

CCJ

The veteran road driver was having a string of tough luck. In five successive attempts to get on regular runs with established motor carriers, he had been notified on the 15th and last day of his probationary employment period, that he had failed to make the grade for safety reasons or otherwise.

It was nearing midnite on his 15th day with the sixth carrier who had given him trial employment. When the clock struck twelve and there was no notice of dismissal he would be in permanently. Nervously he paced the floor of his apartment while his wife sat anxiously by. At 11:50 P. M. they were preparing to celebrate when the blow fell. A Western Union boy handed them a telegram.

The heartbroken driver opened the wire with trembling hands, but suddenly he gave a wild cry of relief. "Darling!" he shouted to his wife, "your mother dropped dead."

CCJ

Rate Clerk. "Whenever my wife and I quarrel she becomes historical."

Bill Clerk. "You mean hysterical."

Rate Clerk: "No, historical. She digs up my past."

DISPATCHER: "VERY FEW WOMEN HAVE ANY KNOWLEDGE OF PARLIAMENTARY LAW."

FREIGHT CHECKER: "YOU DON'T KNOW MY WIFE. SHE'S BEEN SPEAKER OF THE HOUSE FOR 15 YEARS."

CCJ

Young Lady: "Judge, I'd like to change my name."

Judge: "What is your name now?"

Yopng Lady: "Cora Cholmondelez."

Judge: "Can't say I blame you. That's quite a mouthful. What do you want it changed to?"

Young Lady: "I want it changed to Colleen Cholmondelez—people are always asking 'Are you the Catty Cora I read about in Commercial Car Journal?'"

CCJ

The Maintenance Superintendent had to make an extended trip to attend a convention. He was reluctant to leave his current cutie behind, having little confidence in her loyalty. He said he'd telephone her when he could.

She replied, "When you telephone, if a man's voice answers—it's me with laryngitis again."

CCJ

Personnel Manager: "I have your application for the traffic manager position right here. Let's see—name, Richard Roe; weight, 150; eyes, blue; hair —. Oh, look here my good man, it says hair and you didn't fill in the blank."

Balding Applicant: "You fill in my hair and I'll fill in the blank."

Resume Work



-ALI-

Weaving Willie, our City driver, says that he was teaching his new girl friend how to swim last night at the beach, but a life guard came along and made them get into the water.

CCJ

"Pardon me," said the transportation clerk to the blind beggar, "are you the father of these children? All five of them look like you."

"Yes, they're all mine," said the beggar,

"Well, my friend, do you think it's sensible for a man in your position to bring all these children into the world?"

The blind man shrugged and said: "Can I help it if I can't see what I'm doing?"

CCJ

English Bus Driver: "You ladies ought to sit a little closer and make room for more people to sit down. According to an Act of Parliament every passenger is entitled to 18 inches of seating space."

"You can't blame us," replied a matron tartly, "if we are not constructed according to an Act of Parliament."

CCJ

FATHER-IN-LAW: "I SUPPOSE YOU KNOW THAT WHEN I DIE MY DAUGHTER WILL INHERIT FIFTY THOUSAND DOLLARS? . . . WELL, WHY DON'T YOU SAY SOMETHING?"

MECHANIC SON-IN-LAW: "DROP DEAD."

CCJ

The two colored grease monkeys were having an argument about ghosts. One of them claimed to have seen a ghost the night before.

"What was dis here ghos' doin' when you las' seen him?" asked the doubting one.

"Jes' fallin' behin', Mistah, fallin' behin' rapid."



# K-SPUN

## The Miracle Metal For Piston Rings

With the development of K-Spun, the miracle metal for Piston Rings, Koppers engineers and metallurgists made possible a tremendous advance in piston ring efficiency.

For years, automotive engineers have known that the top compression ring in any internal combustion engine did 85% of the job. But they knew, also, that the all-important top compression ring rapidly lost most of its effectiveness because no metal had yet been developed with "guts" enough to give long service in today's high-speed, high-compression engines . . . and no oil ring has ever been designed that can take over the job of the top compression ring.

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In Glenn L. Martin planes—in the new Pan American Stratocruiser—in submarines—in giant oil tankers—in cross-country trucks and buses—Koppers K-Spun Piston Rings are setting new records for power and economy.

There are many reasons why so many leaders in the field of transportation insist on Koppers K-Spun Piston Rings in their gasoline and Diesel engines. Find out now why it will pay you to standardize on these revolutionary rings. Koppers Engineering Department will be glad to tell you the whole story. Write today.

## Guaranteed

American Hammered Piston Rings made of K-Spun with Porous Chrome Plating are guaranteed against breakage on installation or in service for the life of the engine!

## TRANSPORTATION

*Hammered*

# PISTON RINGS



# INTERCONTINENTAL BOMBER

...THE B-36 CAN GO ANYWHERE IN THE WORLD!

AMERICA'S FIRST LINE OF DEFENSE IS ANYWHERE IN THE WORLD IN THIS "AIR-AGE"



THE AIR FORCE NEEDS A BOMBER TO FLY FROM THE U.S. TO ANYWHERE IN THE WORLD AND COME BACK!

CONVAIN IS AT YOUR SERVICE, GENERAL. YOUR SCIENTISTS AND OURS CAN BUILD SUCH A SUPER-BOMBER



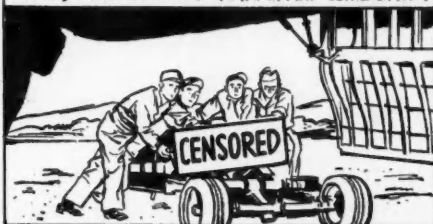
HERE IT IS...THE MIGHTY B-36, GROSS WEIGHT 300,000 LBS. LONG AS THE HEIGHT OF A 14-STORY BUILDING. SIX PRATT & WHITNEY PUSHER ENGINES. COMBAT CEILING WELL OVER 40,000 FT. CANNON TO WARD OFF HORDES OF FIGHTERS. FUEL CAPACITY EQUAL TO 2 1/2 R.R. TANK CARS!

THE B-36 CAN TAKE OFF FROM AIR FORCE BASES ON THIS CONTINENT AND FLY TO 97% OF ALL IMPORTANT CENTERS IN THE WORLD...AND COME BACK AGAIN



NOW LET'S PUT HER TO THE TEST...A BOMB LOAD RECORD!

THE SUPREME TEST...THE B-36 PREPARES TO FLY A "USEFUL" BOMBLOAD (COMPARABLE TO ATOM BOMB) FROM TEXAS TO HAWAII AND COME BACK.



SHE MADE IT...OVER 8000 MILES WITHOUT A BIT OF TROUBLE!



THANKS TO AIR FORCE SKILL AND GREAT ENGINES THAT NEVER FALTERED, THE B-36 PROVES ITSELF AS THE WORLD'S MIGHTIEST INTERCONTINENTAL BOMBER!

# factory

# SERVICE NEWS

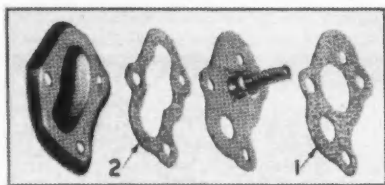


## Briefed for Fleets From Manufacturers' Bulletins

Chevrolet Oil Distributor . . . Diamond T Hydrovac Lubrication . . . Studebaker 2R Axle Leakage . . . IHC Compression Ratio . . . Two-Speed Axle Leakage . . . Plymouth Oil Pressure

### Chevrolet

#### Oil Distributor Valve Spring



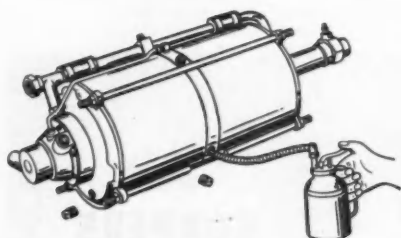
The tension of the oil distributor valve spring is important to the lubrication system. No attempt should be made to increase or decrease this tension in the

field. If the spring is stretched it will result in leakage at the front and rear main bearings and may result in connecting rod failures. If the tension is decreased, it may result in main bearing or camshaft bearing failures.

Use of the wrong type gasket between the oil distributor valve and the cylinder block may be the cause of low oil pressure. Use gasket 1 as shown. Use of cap gasket (2) will permit oil to leak between inlet and outlet ports and dissipate pressure.

### Diamond T

#### Hydrovac Lubrication



Single piston 6 $\frac{3}{4}$ -in. diameter Hydrovacs used on Model 306, the 9 $\frac{1}{2}$ -in. diameter unit used on Models 404, 404SC, 509, 509SC and 414, and tandem piston units used on Model 614 six-wheelers re-

quire periodic lubrication with Bendix vacuum cylinder oil. Lubricate with the Hydrovac on the vehicle and the brakes released.

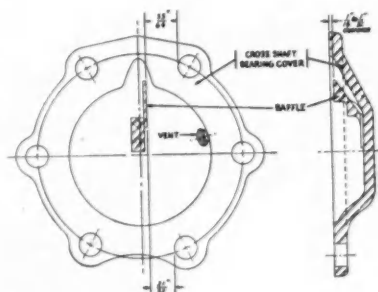
Single piston Hydrovacs equipped with a pipe plug in the rear face of the cylinder shell should be lubricated by fill-

ing the oil to the level of the bottom of the hole. Those which do not have pipe plugs should be lubricated by injecting the oil into the cylinder through the control tube.

Tandem piston units with lubrication openings have one in the end plate which embodies the valve and one in the center rim between the two shells. Add oil until the level reaches the bottom of the opening. Those which do not have openings are lubricated by injecting two ounces of lubricant into the end plate.

### Studebaker

#### 2-Speed Axle Leakage—2R Series



If lubricant leaks from the two-speed rear axle vent on the 2R series, it is possible that the baffle in the cover is not in correct relationship to the vent.

To check for this condition, remove the cover and measure in toward the center of the cover 55/64 in.

from the inner edge of the screw hole above the vent as shown in the drawing. Scribe a mark at that point on the face of the cover. Then measure 21/32 in. from the inner edge of the cover screw hole at the bottom on the same side of center. Scribe a mark at this point. Line a 6-in. scale across these scribed marks. The edge of the baffle (side toward vent) should be in line with the edge of the scale. If it is not, bend it carefully until it is aligned.

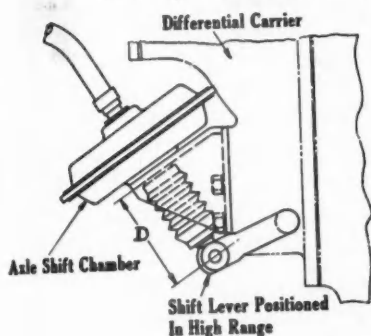
Then measure the amount of clearance between the face of the cover and the wiping edge of the baffle as shown. There should be from 1/32 to 1/16 in. clearance, and this edge of the baffle should be parallel with the surfaces of the cover. If it is not, bend the baffle up or down until the proper clearance is obtained.

(TURN TO PAGE 45, PLEASE)

Continued from Page 42

## International Harvester

### Two-Speed Axle Vacuum Leaks



Inability to shift into or retain the vacuum controlled two-speed axle in high range, indicates a vacuum leak either in one of the system units or at the hose connections. Test as follows:

Start engine with axle shaft button in high range. Race engine for a few seconds, release throttle and turn off ignition switch. Measure distance D. After a period of 10 min. re-measure distance D. If the distance has not increased, the entire vacuum shift can be considered vacuum tight. If the distance has increased, check all vacuum hose connections and hoses. Check in order the speedometer adapter diaphragm, the vacuum control valve and the axle shift diaphragm.

### Compression Ratio Lowered

CHARACTERISTICS of present day fuels generally available have made it advisable to lower the compression ratio of FAB, FAC, BLD and RED engines from 6.3:1 to 6.0:1 ratio. Starting engine serial numbers of production BLD and RED engines equipped with the 6.0:1 ratio cylinder heads are:

Engine Model	Engine Serial No.
BLD-250	63716
BLD-269	96501 to 96504 incl., 96578 up
RED-361	26953, 26990, 27019 up
RED-401	13028
RED-450	27399

In order to lower the compression ratio on production engines as quickly as possible approximately one half of the desired compression ratio reduction was obtained by machining the bottom face of the production cylinder head casting sufficiently to clean up. This increased the depth of the combustion chambers approximately 1/32 in. over the 6.3:1 ratio cylinder head. These cylinder heads are being manufactured under the production head part numbers for the 6.3:1 ratio head and a letter "Z" has been stamped just ahead of the part number on the cylinder head to indicate this change.

Starting engine serial numbers of production engines equipped with the 1/32 in. increased depth combustion

chamber cylinder head and the identifying letter "Z" stamped ahead of the IH part number are:

Engine Model	Engine Serial No.
BLD-250	59339
BLD-269	91871
RED-361	25552
RED-401	9829
RED-450	26264

Lowering of compression ratio will prove beneficial in lessening of valve, piston, and piston ring failures. It is important that engines be in as perfectly "tuned" condition as possible and it is recommended that the following items be checked and necessary corrections made:

1. Check valve stem to valve guide running clearance to assure specified .0015 in.-.0035 in. for intake valves and .002 in.-.004 in. for exhaust valves.

2. Alter carburetor to avoid leanness of mixture. Use exhaust gas analyzer where available.

3. Adjust ignition timing using a timing light or synchroscope.

If fuel having an octane rating lower than 70 is used, or if excessive detonation is encountered either a lower compression cylinder head or two (2) regular cylinder head gaskets (IH No. 35 702 H for BLD engines, IH No. 61 483 HA for RED engines) should be installed. This will reduce the compression ratio from 6.3:1 to approximately 6.0:1.

### Sleeve Fit Correction for IHC

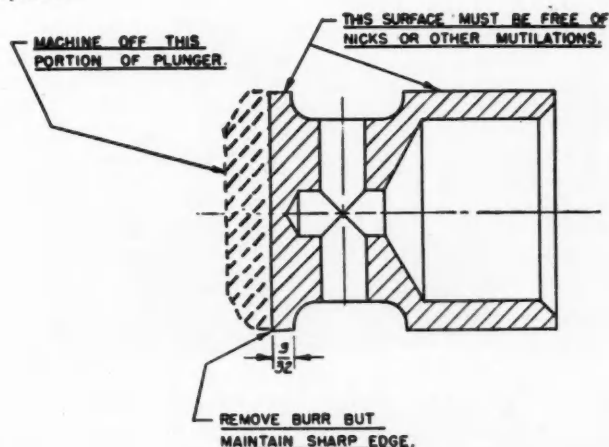
The June issue of CCJ on IHC Cylinder Sleeve Sets, BLD and RED Engines, listed inaccurate specifications. The paragraph should read as follows: "Sleeves should be 100 to 200 lb, hand-push fit, or approximately .0005 to .001 loose."

## Plymouth

### Oil Pressure Relief Valve

A noise sounding like an improperly adjusted tappet occurring at 500 to 800 rpm may be caused by the oil pressure relief valve.

The noise can be eliminated or reduced by changing the length of the plunger to increase the length of the relief valve spring, thus altering the resonant frequency of the system.



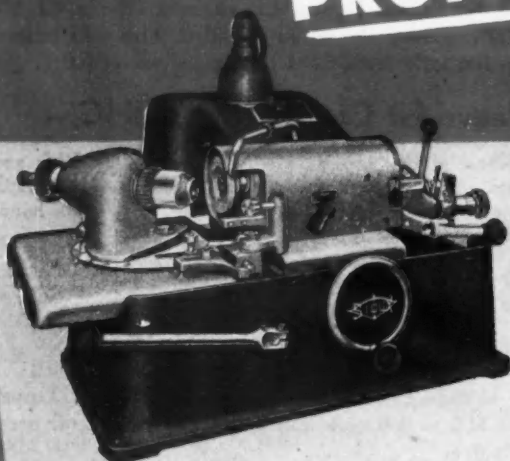
To do this grind or turn down the forward end of the relief valve plunger so that there is a minimum of 3/32 in. land remaining on the forward section of the plunger. Care must be exercised to prevent nicks or damaging any part of the bearing surface of the plunger.

Part No. 1119994 can be installed to reduce the high speed pressure slightly.

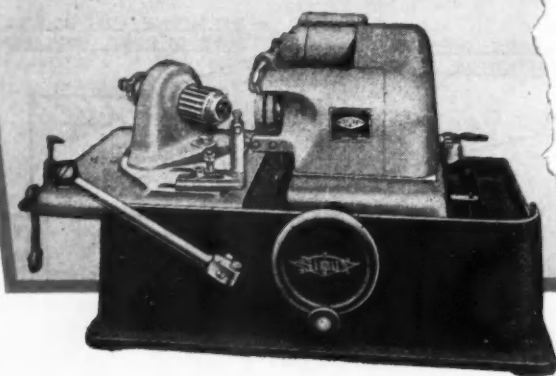


# SIOUX

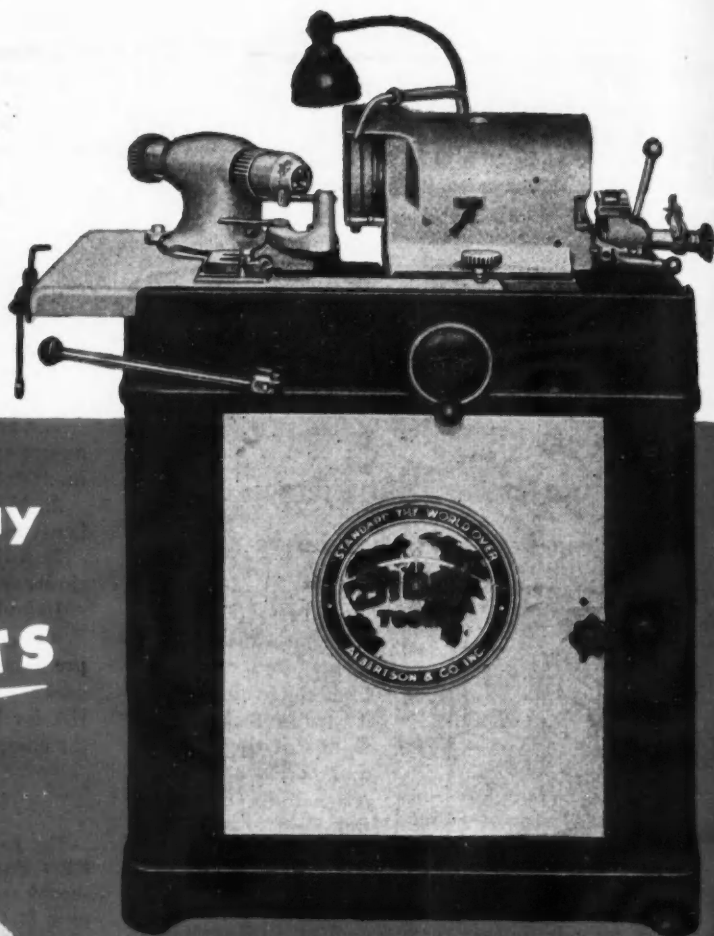
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to **BETTER**  
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No. 622-N—Wet Grinding built in. Eliminates heat and distortion. For valves 15°, 30°, 45°, and 60° angle. Chucking capacity 1/4" to 3/4" diameter inclusive.



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These three units comprise a size and price to fit your needs. They are backed by over 33 years of experiment, research and designing, as well as on-the-job experience of thousands of users throughout the world who have given them the most critical tests.

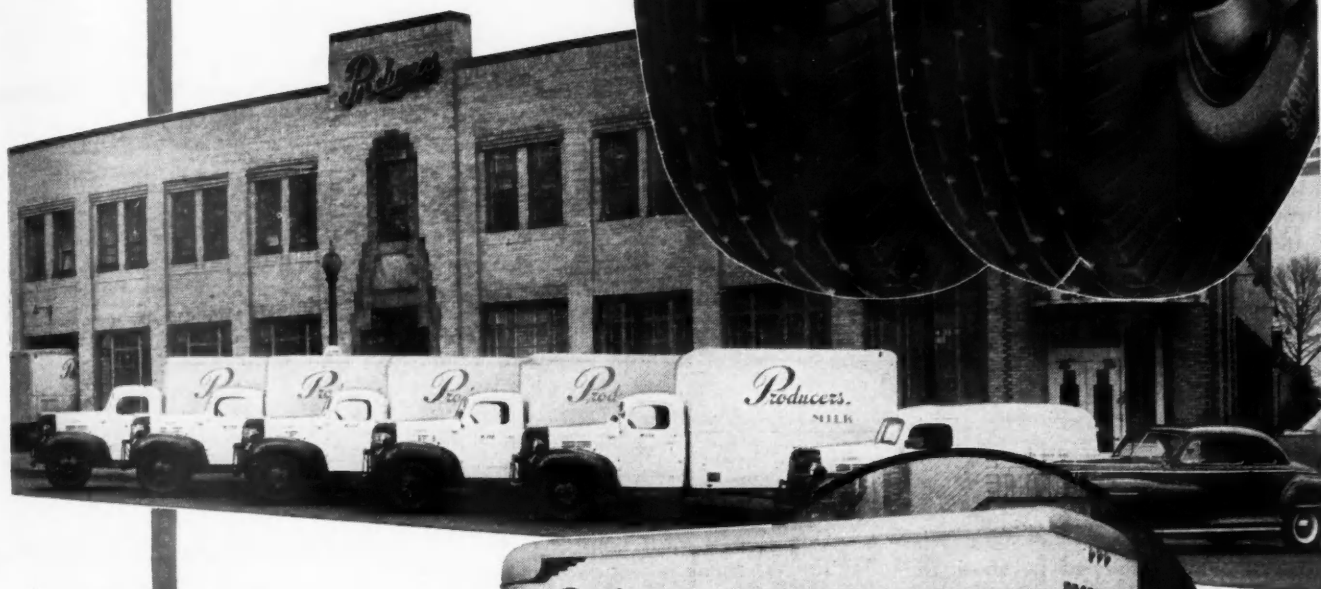
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**T**HE Producers Milk Company of Cleveland, Ohio, has over a hundred motor units including city delivery and heavier trucks that pick-up milk from farms. Wallace French, their fleet superintendent, reports that the Mohawk Tires used on their trucks "have done an excellent job." He commented very favorably on the truck tire service and treading he gets from Raney Tire, Inc., Cleveland Mohawk distributor.

THE MOHAWK RUBBER COMPANY, AKRON 5, OHIO

## MOHAWK'S GO FARTHER...

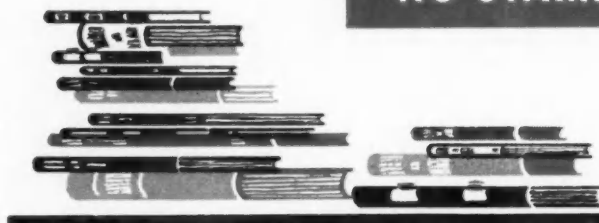
### 9 POINT MOHAWK SERVICE

*Increases Mileage!*

1. Tire Inflation
2. Dual Tire Mating
3. Wheel Alignment
4. Brake Adjustment
5. Proper Load
6. Load Distribution
7. Driving Speed
8. Frequent Examinations
9. Expert Retreading

# **FREE PUBLICATIONS**

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## **L22. Spark Plug Study**

"Spark Plugs for Internal Combustion Engines" is the title of this 12-page publication just made available to the fleet field. Providing a well-rounded background in the history and development of the spark plug, the booklet also introduces a section on plug types, plug testing and various kinds of electrodes.

Plug deposits is the heading of another chapter which should be valuable to truck fleetmen. The author shows effects of too cold operation, too hot operation, rich mixtures and poor oil control. A tie-in with unsatisfactory engine operating characteristics is also developed to show the reader how spark plugs affect engine performance and operating economy. And a final section provides practical notes on servicing. Get your copy of this handy reference booklet now by writing L22 on the free postcard.

## **L23. Automotive Finishing**

One of the most complete handbooks yet published on automobile refinishing methods and color mixing of automotive finishes covers all phases of problems encountered by the shop. This handbook presents detailed information on modern finishing methods, application of the finishes, proper procedures for priming, sanding, wet edging, thinning lacquers, masking, stirring and straining enamels, using lacquer surfacers and making spot repairs.

A section is devoted to listing nearly 50 different common complaints in lacquer application and the remedies for each. Too, there's a thorough treatment of lacquer spraying regulations and suggestions on types, use and care of spraying equipment.

**A selected list of the latest literature —  
catalogs, pamphlets, charts—chosen to help  
fleetmen improve operation and maintenance**

One of the most helpful portions of the handbook is that devoted to the technique of color mixing. This not only gives instructions on how to mix color, but gives a simplified summary of the theory of color which enables the shop painter to become an expert in color usage. Write L23 on the free postcard for your copy.

## **L24. Safety Posters**

As a contribution to the nation-wide campaign toward encouraging safe, courteous driving and building goodwill for the trucking industry, 8½ x 11 posters spotlighting 15 safety and courtesy rules to be observed by truck drivers have been offered to the fleet field. Entitled "For Safety's Sake," these posters also feature an illustration of a truck moving down a highway which is forked in the distance, one division terminating at an attractive home watched over by a mother and child; the other ending in a starkly drawn death's head. Good attention-getters, these posters are suitable both for display and for distribution to truck drivers. Write L26 on the free postcard for a set of these posters.

## **L25. Paint Spray Handbook**

What paint sprayer do you need? How can you select the proper type of air compressor? Here is a booklet that will help you determine the type of equipment best suited to your requirements. This 24-page, pocket-size booklet provides some worthwhile tips on sprayers, compressors, guns and nozzles. In addition, compressor operation is covered in a section on service with a table of trouble shooting steps listed for diagnosing common failures.

Directions for spraying cover the mixing of material, making the pattern, triggering the gun, overlapping and protecting surfaces which are not to be sprayed. A special section shows common spraying faults and remedies, while a three-page chart shows common spray gun troubles and remedies. The last section provides tips on cleaning and safety hints for the operator.

This booklet will be found useful in reviewing some of the factors making for long-lived spraying equipment and satisfactory painting jobs.



# NEW PRODUCTS

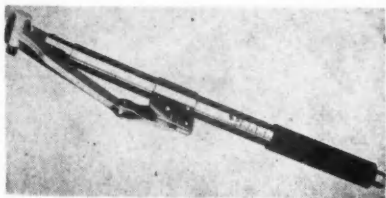
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Illustrating and reviewing briefly many of the newest developments in parts, accessories, shop equipment and tools. For more information mail free postcard

## P59. Tension Wrench

This improved tension wrench has a high limit of 100 ft-lb, which can be increased to 150 ft-lb by using an extension designed for the purpose. It



is calibrated in both ft-lb and centimeter-kilograms.

There are no dials or pointers. Operator merely sets the adjustment to the tension desired; a toggle action releases the pressure when the desired tension is reached. The setting remains fixed (resets automatically) until changed manually. Sunnen Products Co., St. Louis, Mo.

## P60. Dry Extinguisher

This new dry chemical extinguisher is said to provide more efficient expulsion of the extinguishing agent.

The extinguishing principle em-

ployed is the expulsion of a fine white powder onto the blaze. The heat of the fire releases carbon dioxide gas from the powder, and this cools and smothers the blaze. A small carbon dioxide cylinder furnishes the impelling force. The General Detroit Corp., Detroit, Mich.

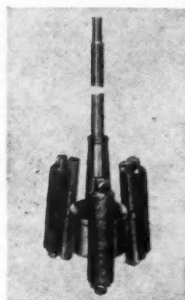
## P61. Pneumatic Hammer

The new Thor pneumatic body and fender hammer is equipped with yokes and associated accessories for repairing all types of turret tops, hoods, bodies, doors and fenders. The hammer has six outstanding features: ball swivel action on both upper and lower dollies that always aligns perfectly; push button "on-off" air control that works like an electric switch; independent needle valve, with knurled nut control that regulates speed and power of the hammer from dead stop to full power; sensitive ratchet control that guides hammer to exact clamping position; positive ratchet lock which is set or released by a flip of the finger and holds the hammer firmly locked in position; and a rigid

yoke locking device which permits quick changes and prevents wear and loose-fitting yokes. The Independent Pneumatic Tool Co., Aurora, Ill.

## P62. Cylinder De-Glazer

This cylinder wall de-glazing tool is completely self-adjusting, has no

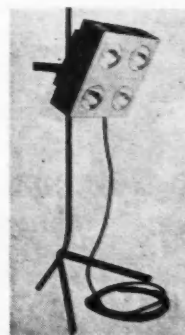


springs or gears to wear out. It will not grab or bind, adjusts itself automatically to the cylinder bore and need only be held in position for best results. The three blades al-

ways move outwardly to the cylinder wall and remain in perfect balance, regardless of size of bore. The tool uses inexpensive metal cloth as abrasive material. Rivets holding the abrasive blade bar are made of soft material as an additional safety factor. The Burd Piston Ring Co., Rockford, Ill.

## P63. Infrared Dryer

The "Porta-Ray" is a low-priced infrared portable drying unit, light



enough to be carried in one hand. It has a two-switch radiation control, is fully adjustable, has a maximum radiant intensity (up to 2 KW), and comes complete with a heavy duty 25-ft. cord for 110-120-

volt operation. The Fostoria Pressed Steel Corp., Fostoria, Ohio.

(TURN TO PAGE 52, PLEASE)

# SAVE MONEY—

## ON OPERATING AND MAINTENANCE COST



### Replace with the Piston that's "Engineer Approved"

Zollner engineers work hand-in-hand with automotive engineers and engine designers to develop pistons best suited for heavy duty use. That's why the majority of manufacturers for years have specified Zollner Pistons as original equipment in truck and bus engines.

And that's why Zollners are your best bet in engine reconditioning. Zollner Pistons are *tailored* to individual engine specifications for utmost performance and economy of operation. They're built to restore *new* smooth power to your engines.

For long, dependable service at lower cost per mile, always specify Zollner Pistons, the choice of automotive engineers.

Used and  
Recommended  
by over 70% of  
all Truck and Bus  
Manufacturers

ORIGINAL EQUIPMENT IN  
AMERICA'S FINEST MOTORS

# ZOLLNER

## HEAVY DUTY PISTON EQUIPMENT

ZOLLNER MACHINE WORKS

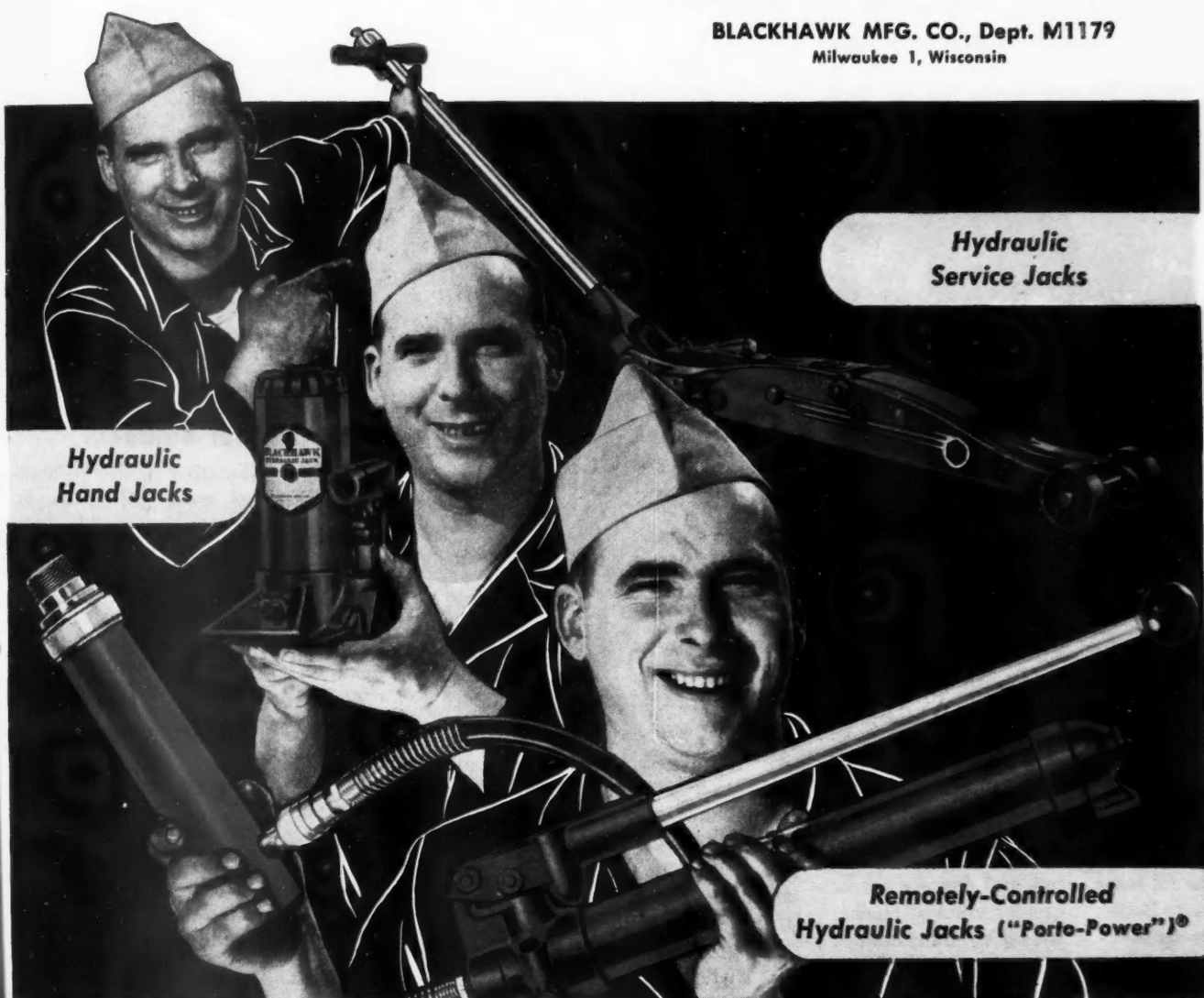
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# BANK ON BLACKHAWK....

## for the world's Most COMPLETE Line of Hydraulic Jacks

It's just good business to *insist* on Blackhawk Jacks . . . because it's the only jack line developed from a *complete* service-proved background. Of all jack manufacturers, Blackhawk is the only one making a full range of hydraulic service equipment, for varied applications. This unmatched experience produces better basic designs. Exclusive features are "profit-proved" for happy users in all fields and in all departments of automotive service.

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COMMERCIAL CAR JOURNAL, July, 1949



# NEW PRODUCTS

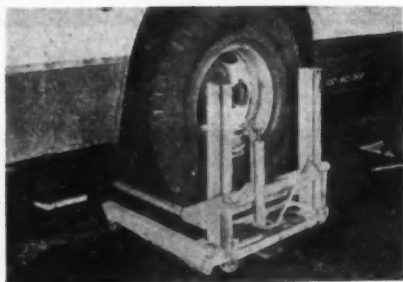
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Continued from Page 49

## P64. Tire Lift

A hydraulic tire lift capable of lifting, tilting and rolling both single and dual wheels from any car or truck, handles loads up to 3000 pounds safely and dependably. It holds the load in any position and



can lift the heaviest 39 in. duals for drum lathe work.

Wheels stuck by rust or damaged brake lining can be pulled safely with the lift. A special chain is furnished to hitch around the upright posts and prevent slipping when the wheel comes loose. H. C. Schildmeier Co., Indianapolis, Ind.

## P65. Metal Repair

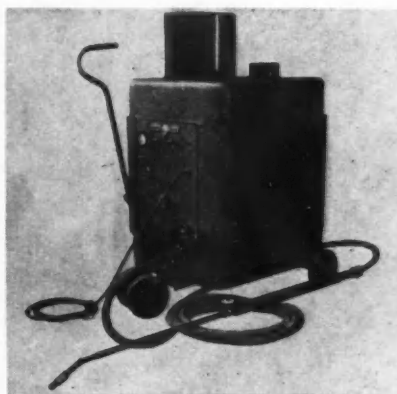
Met-L-it, a new metal alloy in moldable form for making cold metal repairs with absolute adhesion, is used to fill holes, dents and depressions in auto bodies, to repair cracked blocks, to fix leaks in gas tanks and radiators and for many other metal repair jobs. The product, which can be applied with a brush or a spray gun as well as with a knife or spatula, requires no heat or special tools.

Large holes, especially in rusted out body sections, are first covered with Met-L-it Fiber which will mold

to any desired contour and adhere firmly under all conditions. It is then coated with Met-L-it for a hard metal finish. R. M. Hollingshead Corp., Camden, N. J.

## P66. Steam Cleaner

This Hypressure Jenny Steam Cleaner is small in size, requiring only 27 in. x 37 in. of floor space. The unit develops 80-120 lb working pressure; and its normal 45-gal per hour capacity can be stepped up to



240 gal per hour by means of an Adjusta-Blast Gun, a simple accessory which is optional at slight extra cost. Instant starting, instant steaming, automatic nozzle control mechanism and selective compound and fuel feed are features of the machine. Homestead Valve Mfg. Co., Corapolis, Pa.

## P67. Polarized Mirror

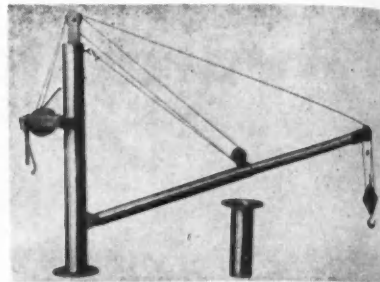
A polarized rear view mirror absorbs the glare reflected from the rear by the sun in the daytime and the glaring lights at night. Light re-

flected from the Sparton Polavision Rear View Mirror is toned down so that only 16.5 per cent of the light striking it is reflected into the driver's eyes. The Sparks Withington Co., Jackson, Mich.

## P68. Truck Loader

A new truck loader enables the driver to pick up and deposit up to 1000 pound anywhere within a radius of 7 ft without moving the truck.

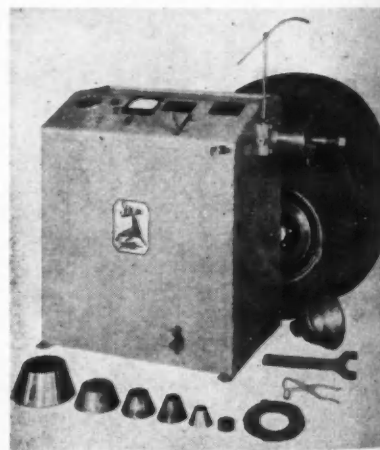
The loader has separate independent winch controls for boom and



hoist lines, and either can be operated without moving the other. The loader rotates in a steel socket attached to the truck bed. Installation requires only boring hole in the truck bed and securely fastening socket to truck frame. Cam Tool Co., Inc., Oakland, Calif.

## P69. Wheel Balancer

This combination wheel balancer handles all car, truck and bus wheels, with or without drum assembly. With



the wheel vertically mounted, it takes both static and dynamic balance accurately and quickly. Its internal, 2 hp motor brings the wheel up to 100 mph in a matter of seconds, thus most

(TURN TO PAGE 160, PLEASE)

# Parts Replacement Practices for FUEL, LUBE, and COOLING Systems



SURVEY NO. 13

## Part 2

Fuel pumps start to go at 28,652 miles, carburetors average 42,732 miles. Radiators and thermostats give around 33,000 miles. Filter cartridges average 4433 miles, although range is 500 to 15,000 miles

Analysis by A. W. GREENE, Managing Editor, Commercial Car Journal

JUDGING BY PARTS REPLACEMENTS, the fuel pump is the weakest link in a truck's fuel system. It is replaced on an average of 28,652 miles, according to reports from a representative cross section of the nation's fleets.

The fuel pump referred to is the mechanical type for gaso-

line engines. Reports on the electrical type were too few to permit tabulation and comparison. Similarly, an insufficient number of returns on diesel engine fuel pumps and other diesel engine parts precludes any comments on their replacement frequency.

### Composition of Vocational Groups as Used in the Accompanying Tables

FOR-HIRE CARRIER—Motor Freight Operators in Local and Over-the-Road Service.  
FOOD DISTRIBUTION—Bakery, Dairy, and Other Food Products fleets.  
GOVERNMENT—State, County, Municipal, and Federal fleets.  
CONSTRUCTION AND MINING—Building, Mine, Quarry, and Gravel fleets.  
INDUSTRIAL—Fleets operated by manufacturers  
PETROLEUM—Production and Distribution fleets

PUBLIC UTILITY—Gas, Power, Water and Telephone fleets.  
RETAIL DELIVERY—(Other than Food Products), Dry Cleaning, Laundry, Newspaper, Coal and Ice, Department Store, Beverage fleets.  
TRUCK RENTAL—Agencies leasing motor trucks.  
TRUCK AND BUS FLEETS, MIXED—Passenger carriers operating own truck fleets



### What is the Average Life of Fuel System Parts?

Table 1

Carburetors lead in longevity of fuel system parts with an average of 42,732 miles. Fuel pumps average 28,652 miles; flexible gas lines are good for 38,335

VOCATIONAL GROUPS	Total Number Fleets Participating in Study	Number Fleets Reporting Average Replacement Mileage	CARBURETORS Mileage		FLEXIBLE GAS LINES Mileage		FUEL PUMPS (Gasoline-Mechanical) Mileage	
			Range (Last 000 Omitted)	Average	Range (Last 000 Omitted)	Average	Range (Last 000 Omitted)	Average
FOR-HIRE CARRIER	34	24	10 - 100	42,714	10 - 200	59,375	10 - 50	32,619
FOOD DISTRIBUTION	53	30	8 - 200	46,960	15 - 150	43,971	10 - 100	30,120
GOVERNMENT	40	26	10 - 100	36,182	10 - 75	28,647	8 - 60	23,957
CONSTRUCTION AND MINING	7	3	20 - 60	36,000	12 - 50	27,333	15 - 35	23,333
INDUSTRIAL	10	6	10 - 200	59,286	5 - 75	41,667	10 - 40	25,250
PETROLEUM	14	11	8 - 100	38,222	6 - 40	30,286	5 - 50	24,545
PUBLIC UTILITY	38	26	10 - 100	41,227	10 - 100	27,824	5 - 100	30,104
RETAIL DELIVERY	23	14	10 - 200	43,583	6 - 50	26,400	4 - 100	28,636
TRUCK RENTAL	5	3	25 - 100	62,500	25,000	25,000	25 - 35	28,333
TRUCK AND BUS FLEETS, MIXED	11	9	20 - 75	38,625	20 - 160	76,000	15 - 60	33,389
TOTAL AND AVERAGE ALL VOCATIONAL GROUPS	235	154	8 - 200	42,732	5 - 200	38,335	4 - 100	28,652

Replacement Parts—ENGINE



related to the causes of most carburetor troubles. But the figures in the table do not permit such a conclusion.

### Fan Belts Average 25,282 Miles

THE fan belt is the most frequently replaced part of the cooling system. The average mileages, and ranges of reported mileages, for this part will be found in Table 3. Other cooling system parts replacement mileages are shown in Table 2, where it will be seen that thermostats and radiator hose have an almost equal life span of around 33,000 miles.

### Filter Cartridges Average 4433 Miles

THE two principal replacement parts of an engine's lubrication system—oil filter cartridges and oil pumps—are reported to last 4433 and 82,124 miles, respectively.

The most interesting figures are the high mileages reported for some of the filter cartridge replacements. Because no questions were asked as to the make and type of filter on which the replacement mileages were given, it is impossible to state exactly that the less costly cotton linters type were the ones discarded at the lowest reported mileages or that the more costly types give the high mileages. However, the point seems well worth investigation by individual fleet operators.

In addition to fuel pumps, the average life of two other fuel system parts—carburetors and flexible fuel lines—are shown in Table 1. Of these the carburetor leads in longevity with an average of 42,732 miles. Flexible fuel lines last an average of 38,335 miles.

The most interesting observation that can be made about Table 1 is that there appears to be no relation between fuel pump replacements and carburetor replacements. It might be expected that fleets with low fuel pump mileage also might have low carburetor mileage, because some causes of fuel pump failures are



### Radiator Hose, Thermostats Good for 33,000 Miles

**Table 2**

Fleets report an average life of 48,506 miles for water pumps, 42,696 miles for radiator hose clamps, and around 33,000 miles for hose and thermostats

VOCATIONAL GROUPS	Total Number Fleets Participating in Study	Number Fleets Reporting Average Replacement Mileage	WATER PUMPS Mileage		RADIATOR HOSE Mileage		RADIATOR HOSE CLAMPS Mileage		THERMOSTATS Mileage	
			Range (Last 000 Omitted)	Average	Range (Last 000 Omitted)	Average	Range (Last 000 Omitted)	Average	Range (Last 000 Omitted)	Average
FOR-HIRE CARRIER	34	26	10 - 150	64,545	10 - 150	64,250	10 - 200	69,118	10 - 80	41,333
FOOD DISTRIBUTION	54	37	10 - 100	49,800	10 - 80	27,857	10 - 100	38,824	10 - 100	33,611
GOVERNMENT	40	33	10 - 80	36,095	5 - 60	25,000	10 - 75	32,294	10 - 60	28,091
CONSTRUCTION AND MINING	7	3	30 - 75	52,500	16 - 30	25,333	16 - 30	22,000	20 - 30	25,000
INDUSTRIAL	10	8	30 - 100	60,000	5 - 50	31,429	15 - 80	41,000	30 - 40	36,667
PETROLEUM	14	12	8 - 200	56,000	20 - 60	32,125	20 - 200	54,125	20 - 40	24,500
PUBLIC UTILITY	38	27	10 - 333	31,516	8 - 60	18,056	10 - 100	28,500	5 - 50	21,900
RETAIL DELIVERY	23	15	10 - 100	46,364	5 - 100	25,250	10 - 50	26,111	5 - 60	27,222
TRUCK RENTAL	5	3	25 - 50	37,500	10 - 25	20,000	10 - 100	55,000	10 - 200	76,657
TRUCK AND BUS FLEETS, MIXED	11	9	30 - 120	63,286	30 - 100	57,667	30 - 80	52,500	30 - 100	56,000
<b>TOTAL AND AVERAGE ALL VOCATIONAL GROUPS</b>	<b>246</b>	<b>182</b>	<b>8 - 333</b>	<b>48,506</b>	<b>5 - 150</b>	<b>33,322</b>	<b>10 - 200</b>	<b>42,696</b>	<b>5 - 200</b>	<b>32,995</b>



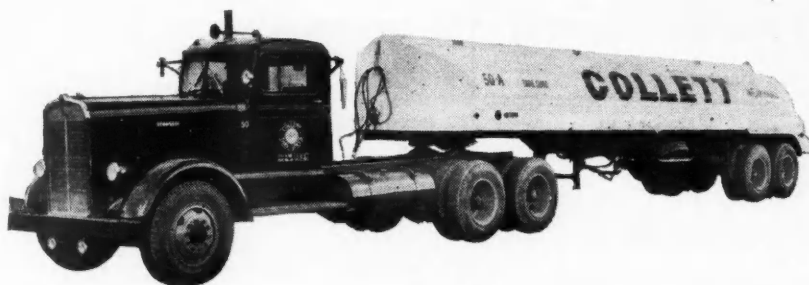
### What is the Life of an Oil Filter Cartridge?

**Table 3**

Filter cartridge life reported to be around 4,000 miles, although range is 500 to 1,500 miles. Oil pumps give 82,000, fan belts about 25,282 miles

VOCATIONAL GROUPS	Total Number Fleets Participating in Study	Number Fleets Reporting Average Replacement Mileage	FAN BELTS Mileage		OIL PUMPS Mileage		FILTER CARTRIDGES Mileage	
			Range (Last 000 Omitted)	Average	Range (Last 000 Omitted)	Average	Range (Last 000 Omitted)	Average
FOR-HIRE CARRIER	34	26	6 - 150	48,143	50 - 200	91,667	.750 - 15	3,677
FOOD DISTRIBUTION	54	37	2 - 60	21,650	20 - 300	102,857	1 - 10	3,829
GOVERNMENT	40	33	5 - 36	18,409	20 - 180	54,883	1 - 10	5,417
CONSTRUCTION AND MINING	7	3	15 - 25	20,000	34 - 45	39,500	2 - 5	3,833
INDUSTRIAL	10	8	5 - 60	27,143	40 - 150	81,000	2 - 5	3,500
PETROLEUM	14	12	8 - 60	33,889	60 - 200	112,500	.500 - 10	3,896
PUBLIC UTILITY	38	27	5 - 40	18,400	40 - 100	67,692	1 - 15	5,672
RETAIL DELIVERY	23	15	5 - 40	17,231	20 - 100	70,566	1 - 5	2,731
TRUCK RENTAL	5	3	5 - 25	16,667	50 - 100	75,000	2 - 3	2,500
TRUCK AND BUS FLEETS, MIXED	11	9	5 - 30	30,000	65 - 180	103,333	1 - 6	3,250
<b>TOTAL AND AVERAGE ALL VOCATIONAL GROUPS</b>	<b>246</b>	<b>182</b>	<b>2 - 150</b>	<b>25,282</b>	<b>20 - 300</b>	<b>82,124</b>	<b>.500 - 15</b>	<b>4,433</b>





# Unit Rating Plan

## Spurs Drivers to Economy and Safety

**Long-distance petroleum hauler teams drivers with equipment to form a unit, then rates the unit on economy and safety. Net results: drivers earn extra money, company trims accident and operating ratios**



**By William H. Blohm,** Operations Manager, Collett Tank Lines, Salt Lake City

FOR THE PAST SEVERAL years we have been steadily decreasing both our accident ratio and our operating ratio (expenses to gross) by means of a Unit Rating System which we believe to be unique. Along with it is a Merit Plan by means of which good drivers can increase their earnings by as much as \$150 a year. Before getting into the details, however, let's get a brief picture of the equipment and man-power with which we are working.

Collett Tank Lines, as the name implies, handles petroleum products exclusively. We have 91 drivers handling 57 tractor-trailer combinations (47 diesel and 10 gasoline) and our routes range into the hundreds of miles, often involving driver changeovers at relay points. To maintain these vehicles we have our own well-equipped shop and a staff of 20 mechanics. The fact that all of the ve-

hicles are kept in as near perfect condition as possible is important in understanding the discussion which follows.

Each vehicle in the fleet is assigned to a particular driver (or driver team) who is responsible not only for its safety but also for its economy of performance. The UNIT, as we think of it in the Unit Rating System, consists of both the vehicle and the driver (or drivers), and the RATING is based on the *cost per mile* which the vehicle and its driver turns in. The lower the cost per mile, the higher the unit rating, and the greater the opportunity to accumulate more miles.

The Merit Plan is based on safety and economy—each driver being awarded one merit for each 500 safe (no-chargeable accident) and economical miles. Obviously the more miles a driver runs (depending on his unit rating) the more merits he can accumulate, and at the end of the year a cash bonus is paid for each merit.

That in a compact nut shell is the basis of our two important plans. Now let's look into the details of how they work, answering we hope, the numerous questions which have undoubtedly arisen in readers' minds. Then we'll tell a little about our gig  
(TURN TO NEXT PAGE, PLEASE)

# UNIT RATING PLAN

Continued from Page 67

## GIG MEMORANDUM

Gigs will be given one for every month (12 per year) to each driver. No driver will be allowed to work if he loses all of his Gigs.

Gigs will be lost in the following manner:

GIGS Lost	Reasons
5	Accidents preventable—Minor
5	Equipment misuse
	(a) Kicking out of gear
	(b) Freeze up engine
	(c) Run tire flat
	(d) Ruining rear ends; transmission
	(e) Fuel Pump abuse
1	Failure to sign in or out
1	Equipment damage—Minor
1	Unnecessary delays
1	Tachograph
	(a) misuse
	(b) no chart
3	R. R. Crossings, failure to stop
3	Speeding
2	Violations of logs (doubles each time)
6	Falsifying logs
0	Personal appearance
	(1 gig for each time cautioned)
1	Keeping unit clean
	(a) Inflammables
	(b) Reflectors & Marker lights
	(c) Cab in & out
	(d) Rear Oval of Tank
	(e) Sleeper berths
1	Logs
	(a) Failure to turn in
1	Safety meeting
	(a) Failure to attend without due cause, every consideration will be given in this and every case, allowing the driver the benefit of the doubt.

GIG Memorandum explains concisely how gigs are awarded and lost for violation of company rules

plan and end up with a resume of the results obtained to date.

### Unit Rating System

WHEN we started the Unit Rating system, we took a full months record of each unit—man and truck. By dividing the total number of miles driven by total cost of operation we

arrived at the cost per mile average for each unit.

Then we divided the units, represented by their drivers, into four groups. The top group consisting of all units with an operating cost per mile under "X" cents, we called the PACE SETTERS. At the start there were five units in this group and we

## COLLETT TANK LINES TRUCK OPERATING RECORD

April 7, 1943

No.	Misc. Oil	Repair Labor	Service Labor	Daily Total Hrs.	Daily Total Amount	Accumulated Hrs.	Accumulated Amount	Parts Daily	Parts To Date
12									12
13									24
16		0/8	0/2	1/0	1.00	42/4	84.51		24.13
17			3/2	3/2	4.25	12/6	15.48		1.20
19						28/6	42.27		32.28
21						1/2	1.01		72
22						1/2	6.24		22
23	2		0/2	0/2	2.00	2/2	4.58		22
24	6	1/8	1/8	2.27	7.47	13/4	3.99	3.99	2.02
26			0/2	0/2	1.25	24/8	62.70		32.12
28			0/2	0/2	2.00	31/4	47.57	1.98	38.26
29						2/6	4.28		29
30		3/0	0/4	3/8	5.29	6/2	9.56		39.30
31		25/8	0/5	25/8	79.25	108/8	180.37	40.79	97.19
32		25/8	0/5	25/8	33.25	61/4	77.91		179.12
33		1/4	0/2	1/4	2.50	65/2	38.71		84.00
34		1/4	3/5	5/0	7.25	11/2	22.06	1.59	111.35
36									2.40
37	12	1/8	0/8	2/5	3.47	12/2	18.27	2.94	3.62
38		2/5	0/2	2/5	4.25	13/4	20.39		1.21
39		0/5	3/8	4/3	5.49	11/2	17.22		30.32
40			1/0	1/0	1.25	11/2	22.67		60
41		0/5	4/8	5/3	6.20	62/4	61.53		14.23
42		2/4		2/4	3.25	14/2	22.20	1.94	14.22
43			0/5	0/5	2.00	17/2	27.03		13.47
44			0/2	0/2	1.00	13/2	20.94		17.50
Trailer	7								
Total		43/8	20/6	63/9	126.89	614/8	779.65	75.29	370.51
Trailer Costs					50/8	76.71	136.77	270.51	12.64
Wrecks						43/4	85.99		3.20
Eq. Bldg. Grds repairs			2/5		3.25	12/4	23.09		
Janitorial labor			3/0		4.25	20/2	45.73		
Other labor (Lansell)			5/4		6.50	42/4	65.23		
Part's Purchased (Est)								3890.51	5119.19
TOTAL					157/8	220.51	940/0	1277.50	3782.24
ADJUSTMENT									
NET OPERATING TOTAL									
STANDARD								1460.25	
Over									17.35
Under									373.66
STATISTICS									
Accumulated miles	50488							17780	
Aver. wage rate	1.51 (Revised)					145.5 hrs.	\$ 215.71	Bkg. \$	1.46
Overtime hours	16-1/2							Road call to Midway	14-1/2
Other labor	Leaved								
Total No. of men	16								Includes 2 cars previously omitted - incomplete
Adjustment									
Estimated Purchases:									
Rear Axel assembly	#29					\$5,300.00			
Conn. rods	#28					\$40 \$100.00			
Bearings	#31					\$ 70.00			
Oil pump parts	#32					40.00			
Misc.						180.51			

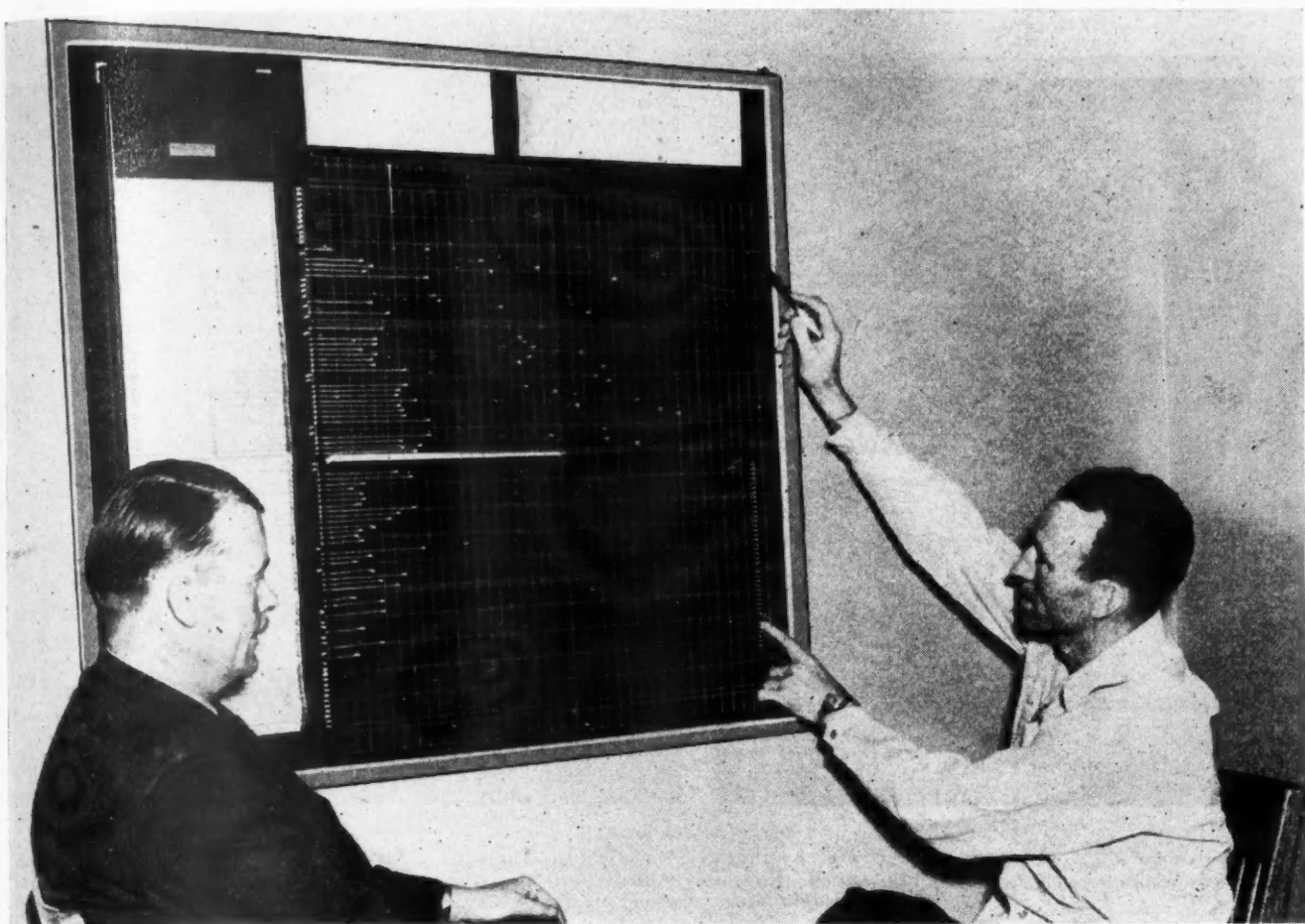
TRUCK Operating Record shows actual expenditures for each unit listed, gives fleet summary at bottom

decided all of them would be assigned a minimum of 5000 miles per month.

The second group we called the ASSAM DRAGONS. They showed a cost per mile of over "X" cents but less than "Y" cents. The third group was named the SHOP LOVERS and showed a cost per mile of over "Y" cents but less than "Z" cents. All units operating over "Z" cents are put in the Boneyard group. In these lower groups the monthly mileage assignments ranged upwards from 2500 miles as compared with a minimum of 5000 for the PACE SETTERS.

At this point the reader may ask how we can rate all units by the same yard stick. Do not the make and age of the vehicle, the weather, road conditions and poor work on the part shop mechanics affect the cost of operation just as much as poor driving techniques?

I like to answer those questions by



**CONTROL BOARD** shows at a glance the daily and accumulated mileage of each unit (driver and vehicle)

assuming that LUCK does play an important role. But if one group of drivers can operate their equipment economically regardless of bad weather, age of equipment, etc., then why can't the others? Putting it another way—when we hire a driver we not only hire a man but also his luck. We don't want any "bad luck Charlies." As to the mechanic who is prone to "bad luck" we have found that drivers have a way of weeding them out as every operator knows. The poor mechanic may get by the superintendent but not by the drivers for long, particularly when the stakes are high.

In practice it has been found that drivers in the lower groups can work themselves into better groups by reason of lowered cost per mile. For example, when driver Jones finds out that by keeping his foot out of the throttle, he uses less oil, he may save two gallons in 500 miles. At \$1 per

gal. that means almost  $\frac{1}{2}$  cent per mile. By the same rule, if he cuts out jack-rabbit starts and stops he saves tires and clutch. Items thus lowered amount to a good deal more than  $\frac{1}{2}$  cent per mile. In every case the driver gets all the credit.

To be sure the dispatcher exercises considerable control over ratings because of the nature of his assignment. He is the key man in our plan. He can alter driver standings merely by favoring one over another.

#### Control Board Marks Progress

**B**UT we have a check on him in the form of a rather elaborate control board (see photo above) which is posted daily by the transportation supervisor. Drivers can and do check the board carefully and are given every opportunity to discuss all matters pertaining to ratings with the driver bosses, and the transportation supervisor. I also make it my spe-

cial assignment to watch "favoritism" very closely. We have had very little trouble in this respect.

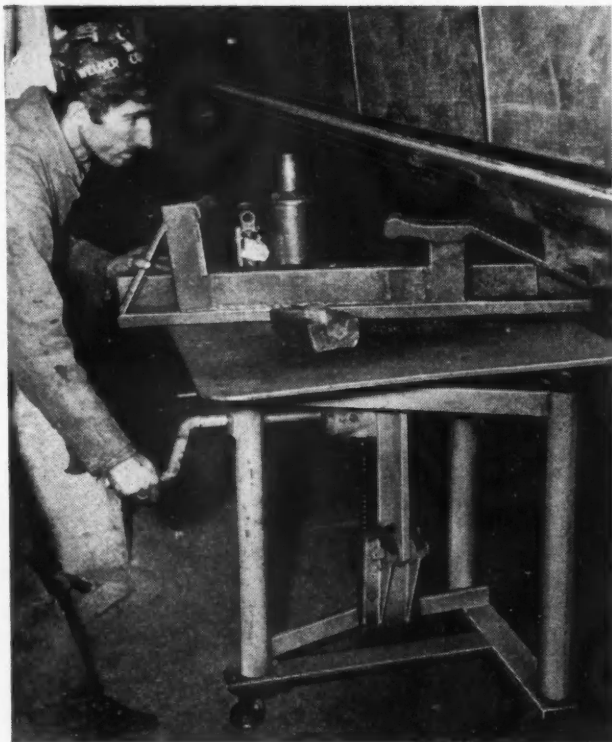
Here's how the board works. It's a patented job called "Product-Trol." You have seen it previously described in *COMMERCIAL CAR JOURNAL*.\* It features a great number of holes for moveable pegs and a mechanism in the back to keep tension on strings attached to the pegs.

We use the top half of the board to show the accumulated monthly mileage for each of our 57 units. Each has a peg with string attached which is moved to the right each day a distance corresponding to the mileage actually run by the vehicle in accordance with the scale at the top of the board. On the same line with each unit are different colored pegs at appropriate points which indicate the maximum miles ever run by the unit

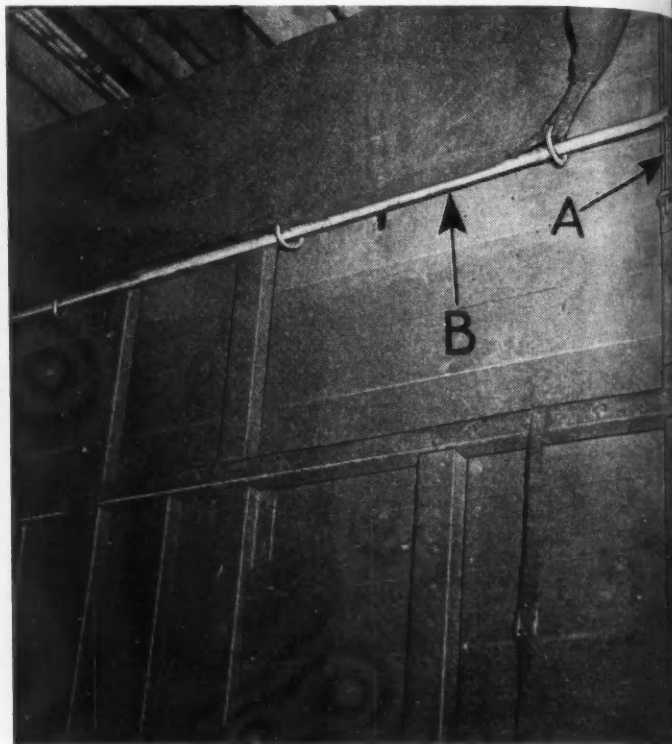
\*June, 1948, page 46.

(TURN TO PAGE 145, PLEASE)





**Fig. 1** Elevating steel table supports anvil jig in correct position for straightening channel iron members



**FIG. 2** Rings on tarpaulin slide on rod B which moves up and down rod A. Rig saves time and material

# TRAILER TRICKS . . . Cut Costs . . .

Straightening channel iron . . . reboring bellcranks on a drill press . . . installing air and

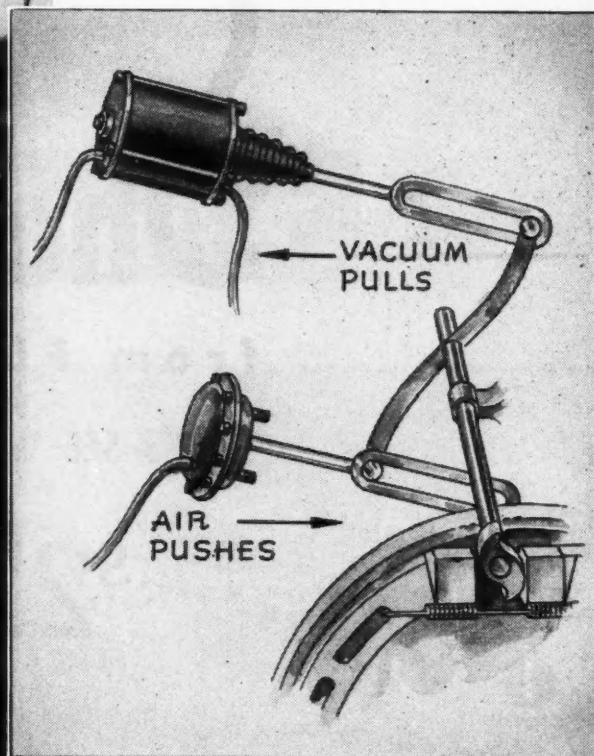
**By L. H. Houck**  
Special CCJ Correspondent

**EDITOR'S NOTE:** This is the fourth and final article in a series concerning maintenance operations of Watson Brothers Transportation Co. For others, see "Having Valve Troubles?" Jan., page 67; "Super Overhaul," March, page 78, and "Service While You Load," June, page 70.

**V** CHIEF CLAIM to fame of the trailer repair shop of Watson Bros. Transportation Co., Inc., Omaha, is the cash savings in its rebuilding and repair routine. These cash savings run into hundreds of dollars a week.

An example of one operation will illustrate the point. Bellcranks from the very nature of their job wear

fast. A new bellcrank formerly cost \$17 but they now cost \$39. Watson's trailer repair shop rebuilds these worn cranks by welding and reboring and Ernest DeHart, trailer plant foreman, estimates that a routine day on bellcranks will save the company \$100 after paying labor and overhead costs.



**FIG. 3 (left)** Jig and jack on drill press table supports refilled bellcrank to assure accurate positioning

**FIG. 4 (above)** Diagram shows how both air and vacuum cylinders are hooked up to trailer brakes permitting complete interchangeability of tractors

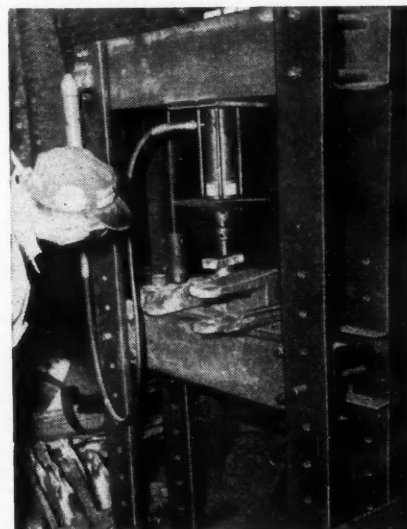
## ... Boost Efficiency

vacuum brakes are some of Watson-developed practices

The main wear consists of elongated holes. These holes are built up with bronze applied with an acetylene welding torch. The chief drawback to refilling round holes with bronze is the expense of cutting out the excess metal and conforming the repair to the original diameter. An ordinary twist drill cannot be used

because it will follow the part of the hole left, resulting in total loss of accuracy. Another way is to fill the hole entirely with bronze or other metal, relocate the hole and redrill. This method requires precision work and often it is impossible to locate the new hole exactly in the position

(TURN TO PAGE 116, PLEASE)



**FIG. 5** Press frame with bed plate variable from floor to within 1/2-in. of top extends usefulness of hydraulic power unit and can take light work up to almost five feet in length

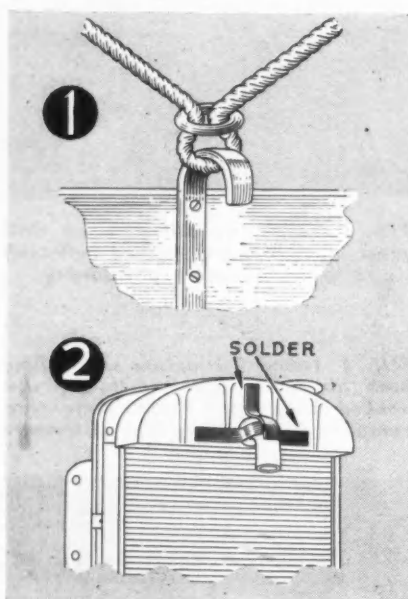
# Shop hints

from FLEET SHOPS

LET'S SEE WHAT YOU'VE GOT ➤ ➤ ➤ ➤

**\$25** FOR THE BEST HINT PUBLISHED  
EACH MONTH . . .

**\$5** FOR ALL HINTS  
PUBLISHED EACH MONTH



## 1. Rope Keeper

by Roland Brunette  
Chair City Motor Express Co.  
Sheboygan, Wis.

When a truck tarp is tied on hooks like these, a lot of time and trouble will be saved if the ropes are held on the hooks by wire links. If the rope becomes loose, or even if it breaks, it can't come off the hooks.

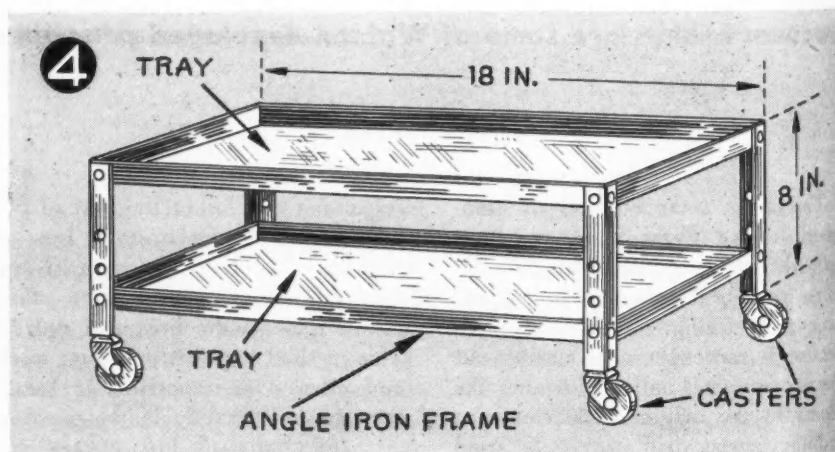
These links should be bent out of No. 10 galvanized wire to fit the size of the rope used.

## 2. Radiator Reinforcement

by William M. Kendrick  
Acme Laundry Co., Chatham, Mass.

Winter operation of our trucks over bad roads causes the radiator top connection to crack and come loose from the tank, dumping the anti-freeze and making a repair job necessary.

We have stopped this trouble by soldering two sheet copper straps from the back of the gooseneck to the tank as shown. A few minutes' time here saves a major repair later.





## \$25 Hint of the Month ★

Ever rolled off a log? That's how easy it is to roll into the money with your shop hint collection. Just put on paper what you made with iron, wood or baling wire. Give the editors a chance to study your time and money saver.

You'll be \$5 richer—and you have a good chance to pick up the coveted \$25 award for the Hint of the Month. But sit down now, for five minutes, and jot it down—before you forget. We'll be looking for your contribution.

### 3. Power Grinder

by E. H. Kallenbach  
Eldon Implement Co., Eldon, Mo.

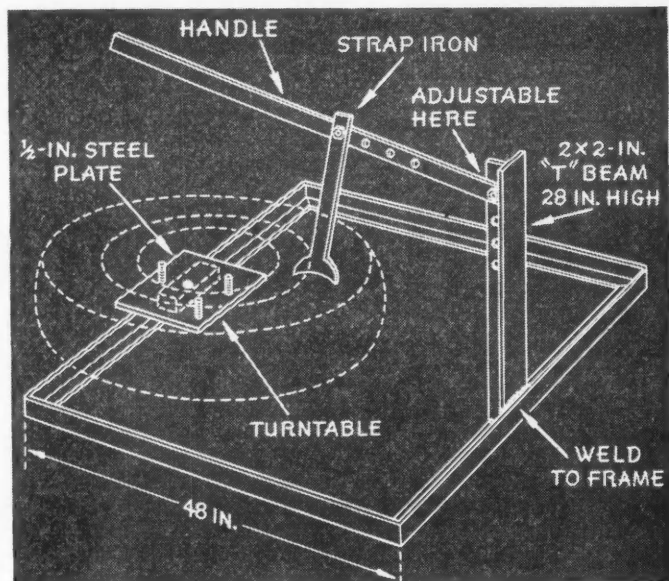
A power grinder made out of the rear axle and differential of a Model A Ford has saved time and money in the Eldon shop. The ring gear was changed to a V-belt drive, and an electric motor was set at the base. Axles were re-worked to provide conventional mounting of the grinding wheels. The end axle bearings were retained to give roller bearing support near the point of pressure on the wheel.

### 4. Tray Table

by C. T. Dexter  
Pacific Power & Light Co.  
Yakima, Wash.

Here is a sketch of a small tray table I designed to keep the tools and parts together on each job. It is especially useful when working under cars for it is low enough to see in either tray from the creeper and also keeps the tools off the floor.

The rubber casters make it easy to move, and it can be placed on the cowl or fenders without injuring the finish. The trays are removable for cleaning and carrying tools and parts to the bench. It also eliminates tool loss or forgetting to install some part.



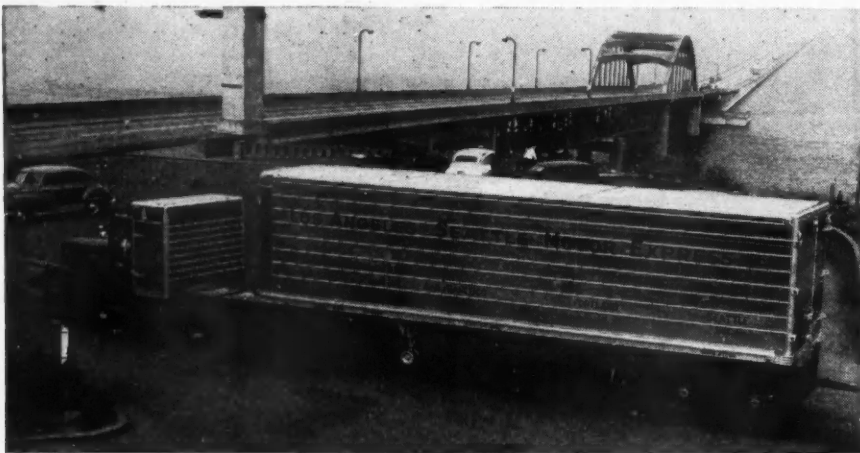
### Home-Made Tire Tool

by Orion L. Williams

Potter Coal and Material Co., Indianapolis, Ind.

After struggling with many a stubborn tire and Budd wheel we devised a tire head breaking tool which will fit any size truck tire. The tool consists of a base 48 in. square made from either channel or angle iron. An upright is cut from a T beam and welded to the center of one section of the frame. This should be 2 x 2 in. stock and 28 in. high. Holes are drilled in the top one inch apart for mounting of a handle, which is thus adjustable to various tires. The handle is made from heavy strap iron and should be 48 in. long. This also is provided with four holes so that the tongue or plunger can be adjusted to various tires and wheels. The plunger is made from strap iron 18 in. long and shaped to fit the curvature of the side of the tire as shown.

A block is welded to the frame directly opposite the upright and a turntable is attached to it. This is made from a 1/2-in. steel plate 12 x 12 in. Threaded studs are placed on the plate to correspond to the holes in the wheel. This serves to hold the wheel in place while pressure is applied to the tire through the handle. The wheel is free to turn on the turntable so that all sections of the tire can be pressed off the rim.



**By O. M. Hendrickson**

Secretary-Treasurer, Los Angeles-Seattle Motor Express, Inc., Seattle

# MERCHANDISING SAFETY

## with Merchandise Awards

Complete details of a fleet safety incentive plan for drivers that uses merchandise awards, features defensive driving and has halved accident ratio

ACCIDENTS ARE troublesome because they not only cause death, but they also cause a loss of goods, time and prestige. In order to reduce this menace, we installed a novel safety incentive plan on June 1, 1948, that has reduced our total accidents from 2.8 per 100,000 miles or one every 35,700 miles during the preceding six months to 1.2 per 100,000 miles or only one every 83,300 miles during the first six months of its operation. Furthermore, many of these accidents were unavoidable upon the part of our drivers.

We have 222 units covering a dis-



**Prize Order**

I have sufficient points to my credit for the prize listed below; earned in the campaign conducted by LOS ANGELES-SEATTLE MOTOR EXPRESS INC.

Please ship prize to the following address:  
 Name MRS. JOHN SMITH Care of MRS. JOHN SMITH  
 Street 6001 JONES ST. City SEATTLE Zone 11 State WASHINGTON

**EDP\* Important** Give all necessary information below such as Size, color, finish, pattern, current, cycle, AC or DC, man's, boy's, woman's, girl's, height, weight, length, right, or left, etc.

Ques	Prize No.	Name of Prize	Quantity	Detailed description of prize, refer to above	DO NOT WRITE IN THESE SPACES
1	7306	GAINSBOROUGH CHAIR	9000	HEIGHT 45" WIDTH 16" 19" DEPTH TORQUOISE	

Prize Winner: Do not write below this line

**APPROVAL**  
 This certifies that this order has been examined and checked and found to be correct in all respects.  
WILLIAM EDWARDS  
 Authorized Signature  
 Date JAN 9 1949

This space is to be typed, unless changed or printed plainly by dealer of prize.  
 Purchase Order No. 2118  
 Company Name LOS ANGELES-SEATTLE MOTOR EXPRESS INC.  
 Street & No. 3200 6TH AVE SOUTH  
 City SEATTLE State WASHINGTON

DUPLICATE

**WORTH DOLLARS IN VALUABLE MERCHANDISE PRIZES**

DATE Jan. 1, 1949

WE HEREBY ISSUE TO John Smith

—3100— PRIZE POINTS, REDEEMABLE ONLY  
 IN MERCHANDISE PRIZES IN ACCORDANCE WITH OUR COMPANY'S S.O.S. RULES

SIGNED BY William C. Taylor  
NOT TRANSFERABLE

ABOVE. Certificate indicating points earned is awarded each driver qualifying soon after the first of each month

LEFT. Prize Order, supplied with ATA Safety kit, provides convenient, detail method for ordering awards. Driver may request merchandise as soon as he earns sufficient points

TOP OF PAGE. New tandem rig with sleeper "box" behind cab

tance about equal to a trip around the world each day and doing a business of four million dollars a year. We have general freight to Vancouver, on the north, to San Diego on the south, and we furnish connections for Texas, Nevada, New Mexico, Arizona and Oklahoma, serving all intermediate points.

The rules which we have established for the current incentive plan (reproduced in full at right) are based on these important essentials:

1. Emphasis on defensive driving.
2. The use of merchandise awards.
3. Competition between teams (of drivers and equipment) as well as between individuals.

We believe that defensive driving involves not only the matter of whether the driver is at fault in mishaps, but upon his ability to keep from being involved in an accident. Consequently, the fact that a driver was merely involved in an accident calls for a searching analysis as to the way in which he was responsible. Our rules for determining whether or not an accident should be charged against a driver's record are based upon these principles.

Wallace Taylor, our safety engineer, defines a defensive driver as one who is careful to commit no driving errors himself and makes allow-

(TURN TO PAGE 108, PLEASE)



## Rules for Safety Incentive Plan

### PARTICIPANTS

All drivers of Los Angeles—Seattle Motor Express owned or leased equipment as of June 1, 1948. Drivers employed after that date will receive point awards beginning with the first pay trip after they have completed the employment and physical examination, and will be eligible for prize awards only after they have completed six months of continuous service with the company.

### PRIZES

Prizes to be selected, by drivers who qualify, from the Sights on Safety Prize Catalog. The value of each driver's prize to be determined by the degree of his success in accident-free driving and on-the-ball job performance.

### POINT AWARDS

Line equipment shall be divided into three groups of equal number—hereafter termed as Team A, B, and C (Note 1).

Each month driven without avoidable accident, each driver..... 400 points

Each month no reportable accidents at all, each driver..... 200 points

Six months no avoidable accidents, each driver ..... 500 points

Six months no reportable accidents at all ..... 300 points

Monthly team with lowest number of avoidable accidents, each no avoidable accident member ..... 200 points

One year best record team, each no-avoidable accident member..... 200 points

No questionable (unfavorable) Road Patrol Reports for one month, each driver... 100 points

Team with lowest number of questionable (unfavorable) Road Patrol Reports for month, each member..... 50 points

Each month no trouble with refrigerated loads that means re-icing when necessary, and proper care to use blankets and other means to prevent defrosting, each driver... 100 points

Monthly bonus for no infractions of company regulations ..... 100 points

This includes:

- a. No neglect shown in serving customers.
- b. No neglect shown in handling, checking or servicing equipment.
- c. No tires run flat.
- d. All equipment defects properly and thoroughly written up.
- e. Requisitions properly made out.
- f. All doors thoroughly latched.
- g. No freight damage, short or over.
- h. No air valves turned off during operation of equipment.
- i. No trailer hitch lock open.
- j. Safety equipment not sufficient in tractor at any time of inspection. Each driver assigned, last driver to use equipment or extra driver operation at the time, whichever case applies; loses bonus.

Attendance at Safety Meeting..... 100 points

Driver failing to follow Accident Reporting Procedure: Loss of ALL points for the past six months (Note 2).

Specific letter of commendation from a customer or tourist for work well done or any particular courtesy extended by the driver ..... 100 points

### PENALTIES

1. An avoidable accident shall cancel all earned points accumulated during the month accident occurred up to the date accident occurred. No points will be counted for the trip on which accident or

mishap occurred. Record will start again with the beginning of the next trip and points for that month prorated for the remainder of the month. Six month bonus award period will recommence on the first day of the month following the accident.

2. Dispatchers and any other persons of supervisory capacity may report merit points or causes for sacrificing merit bonuses via inter-office memo to the Seattle Safety Section for posting to the individual records.

### JUDGING ACCIDENTS

Accidents shall be judged as being avoidable or unavoidable—depending upon the decision of a committee of five: two drivers selected by the driver supervisor; the shop superintendent or a representative from the shop selected by the shop superintendent, the driver supervisor and the safety supervisor.

Meetings of this committee shall be held as soon after the first of each month as practicable. The decisions of the committee will be final.

### PROMPT PAYMENT OF POINTS

Points earned will be presented to each driver in the form of a certificate as soon after the first day of each month as possible. These may be redeemed AT ANY TIME through the Seattle office by ordering in writing, on forms provided, the merchandise by name and catalogue number and attaching the required point certificates. If the driver does not hold point certificates in the right denominations to add up to the number for the merchandise ordered, new point certificates shall be issued to make the proper change. Prizes will be sent direct to the driver's home.

### DURATION

The plan shall be for one year at least and continue on this or a revised basis if it proves satisfactory. The company retains the right to discontinue this contest at any time. Other bonus awards may be added by suggestion of any employees and with the approval of the management.

### VACATIONS—ABSENCES

No points will be credited for idle time regardless of reason for such time off (Note 3).

Driver taking time off shall be eligible for bonus awards only, on a prorated basis in proportion to his participation in his own bonus period or the bonus period of the team with whom he has made the most trips.

### ADJUSTMENT FOR FORMER AWARDS

Drivers accumulating safe driving records for any part of the year ending July 1, who have not already been rewarded, shall be rewarded on the basis of one-twelfth of 10,000 points or 833 points per month of accumulated no-avoidable accident driving. So long as the driver has been employed six months or more, his points may be cashed in immediately or accumulated as the individual desires.

Wallace C. Taylor  
LOS ANGELES-SEATTLE  
MOTOR EXPRESS, INC.

### EDITOR'S COMMENTS:

Note 1: Teams are made up of approximately one-third of total equipment and one-third of total drivers, care being taken to intermix old and new equipment, as well as experienced and newer drivers. It will be noted that awards are based on both individual and team performance.

Note 2: His account is charged with the number of points lost, and if driver has no points this penalty is carried over until next month.

Note 3: This rule was inserted to discourage the practice of too-frequent lay-offs.

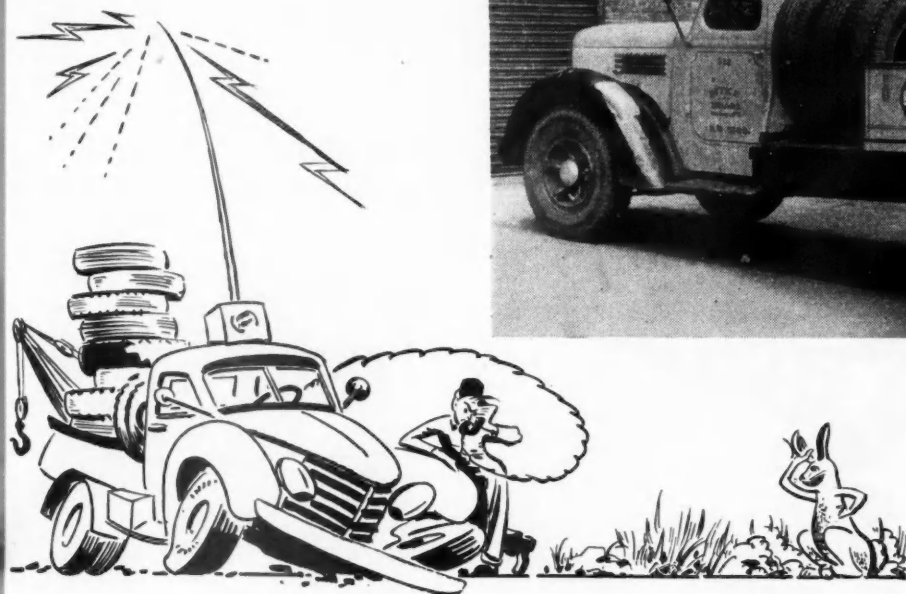
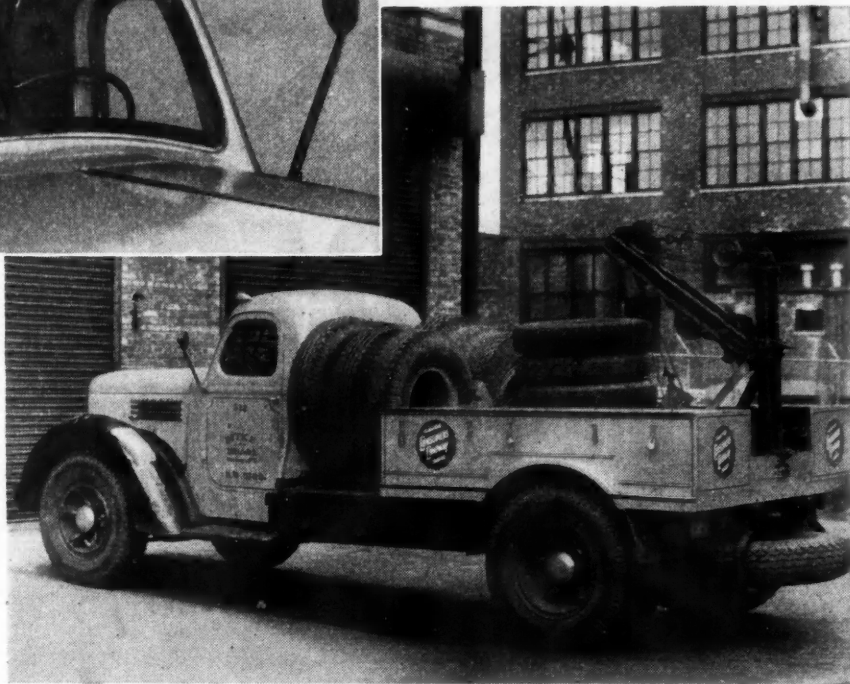






**LEFT** Close-up of two-way mobile Bell Telephone equipment mounted in box atop cab on service truck

**BELOW** Complete truck represents \$5000 investment in equipment and tools. While tires predominate, it also carries a great many other servicing items (see text)



will be handled either by the maintenance superintendent or his assistant. They are recorded as received on "Truck Service Report 168" (reproduced above). This form is 17 in. long by 5 in. wide, and is made out daily in triplicate. It has long single-space lines for the possible recording of 14 different road-failure reports; and it is the company experience that very seldom have there been more than 14 such emergency road calls during a day.

When a driver reports a road-failure, he is asked to state briefly, in order: Truck Number, Location and Nature of Trouble Reported. As he talks, the information pertinent to each item will be jotted down in the provided space on the Truck Service Report form. The person at the dispatching desk who receives the call also will insert the exact Time of Call. Then he will contact the service truck which is assumed to be nearest the location of the stranded truck. To

provide information as to the exact location of the stalled truck, there are convenient large wall maps of Chicago and the suburban area.

Usually within a few minutes at the most, the dispatcher will get a response from the service truck being called. The possible lapse of time will come if there is a delay at the Telephone Co. headquarters; but in general these mobile telephone connections have been very prompt. Also, the response by the mechanic may be delayed if, at the moment of the call, he is driving rapidly or in a traffic tangle, thus requiring that he park his truck; which is required by company regulations. It may even be (TURN TO PAGE 123, PLEASE)



# MURDER

## In the Fleet Field

*the Victim*



## ... Spark Plugs

Here are the "fouls"—knocked off by poor servicing, improper installation, use of wrong type plugs, and inefficient engines

Carbon, heat, gas and oil residues, inefficient engines and careless mechanics raise havoc with spark plugs. The photographs on these pages prove it. Fortunately, however, causes of such failures are easily detected from careful examination of the tips and electrodes.

When your spark plugs fail prematurely, use this guide to track down causes of the trouble. The proper plug, properly serviced and cared for will save you money with improved gasoline economy, easier starting engines, better power, and more dependable engines.

Photographs courtesy of the following manufacturers: AC Spark Plug Div, GMC; The Electric Auto-Lite Co.; Champion Spark Plug Co.; Globe-Union, Inc., Hastings Mfg. Co.

**Cause:**  
Gas Fouling



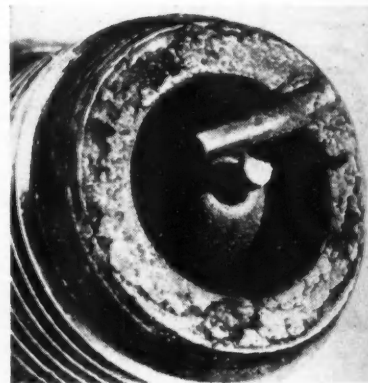
**Result:**

Dry fluffy black deposits are accompanied by minor electrode erosion.

**Remedy:**

This is an indication of too rich gas mixture. Adjust carburetor to leaner mixture, and be sure plugs are of correct heat range. Check for improper choke setting.

**Cause:**  
Low Speed Operation



**Result:**

Black carbon or soot is deposited on electrodes and the rim of the shell. The formation may be dry and fluffy due to gas fouling, or it may be wet black carbon caused from oil. Electrodes seldom show tendency toward erosion in this type of failure, but chronic fouling results.

**Remedy:**

Select plugs of proper heat range, and if fouling persists, change to hotter type of plug. Avoid excessive idling. Keep engine temperature to recommended heat range. Since a similar type of fouling may be caused from excessive oil or fuel in combustion chamber, check air-fuel mixture, condition of rings, and valves.



**Cause:**  
Oil Fouling



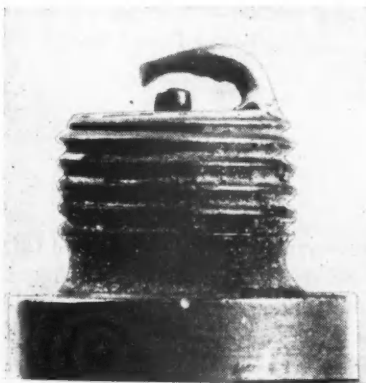
**Result:**

Oily sludgy deposits are accompanied by minor electrode erosion.

**Remedy:**

This condition is usually the result of excessive oil reaching the combustion chamber past the rings or the valve guides. While use of hotter plug may help the condition, engine overhaul is recommended.

**Cause:**  
Excessive Temperature



**Result:**

Gap will widen or electrodes will show wear prematurely. Light colored shiny globules of oxides may be deposited over the firing end or tip of the insulator. Electrodes may be melted under the extreme temperatures.

**Remedy:**

Check seat gasket to be sure plug has not been tightened to a point where heat cannot be dissipated to the cylinder head properly. Check engine operating temperature. Check for leaking valves, lean air-fuel mixture, water leaking into combustion chamber. See that ignition timing is adjusted properly. Then select plugs of proper heat range for engine.

**Cause:**  
Leaded Fuels



**Result:**

White powdery deposits are accompanied by normal electrode erosion. Continued operation may produce accumulation on center nose, electrode and shell.

**Remedy:**

Select fuels which fit the particular engine and operating conditions. Clean and regap plugs at regular intervals.

**Cause:**  
Too Cold Operation



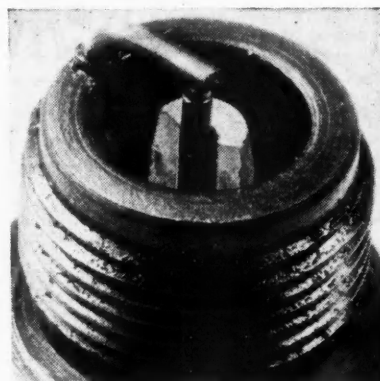
**Result:**

Wet black carbon deposit on firing end and tips of electrodes indicate oil fouling due to insufficient temperature. This sludgy accumulation may fill the space between the shell and the insulator nose. There usually is no electrode erosion present.

**Remedy:**

This type of failure is tied in closely with poor oil control through rings and valves. In some cases use of a hotter plug will correct the trouble, but periodic fouling will indicate the necessity for engine reconditioning.

**Cause:**  
Improper Adjustment



**Result:**

Insulator nose split in this manner is usually due to bending the center electrode in an effort to set spark plug gap.

**Remedy:**

Use a regular plug gapping tool, and bend the side electrode only. Strain should never be placed on the center electrode.

**Cause:**  
Improper Spark Timing



**Result:**

Electrodes are burned. Insulator has a white blistered appearance caused by excessive heat.

**Remedy:**

While improper spark timing is one of the most prevalent causes of this type of failure, actually other conditions may contribute to the break-down. Check for improper air-fuel mixture, leaking valves, improper plug installation, and for wrong spark plug type. Set ignition timing to specifications to eliminate pre-ignition.



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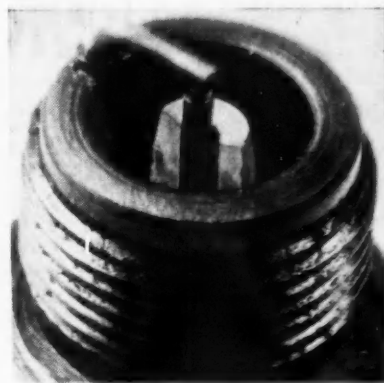
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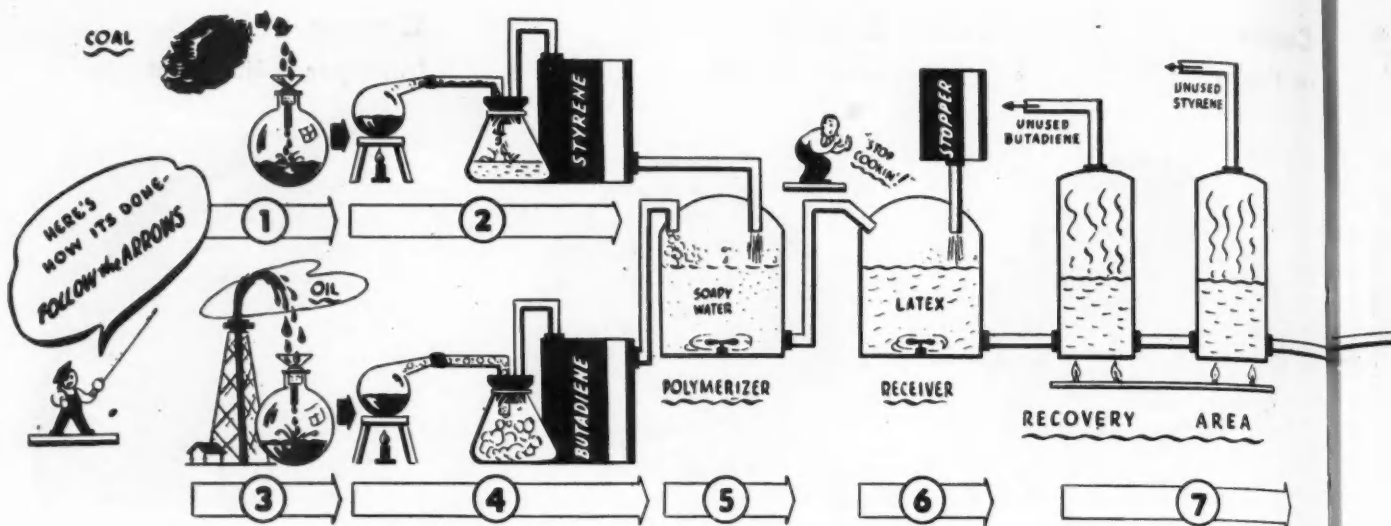
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# COLD RUBBER

## Facts for Fleets

NOTHING HAS STIRRED up the tire industry in several years quite as much as the current question of cold rubber. Since the product was introduced about two years ago by a group of eight smaller rubber companies known as the Copolymer Corp. working in collaboration with Phillips Petroleum Co. and the Rubber Reserve Co.—an agency of RFC—the wrangle over claims and counter-claims about cold rubber's superiority for use in passenger cars and truck tires has waxed hot.

In order to get as accurate a picture as possible, COMMERCIAL CAR JOURNAL has talked with representatives of both camps and presents herewith the best summary it can get, but which is in no way conclusive because of the various differences of opinion yet remaining to be resolved.

It should be made very plain that two principal points of issue are involved. The first is not whether cold rubber is superior to natural in tread wear, but how much superior. The second is whether cold rubber has certain deficiencies that make it inferior to natural rubber for all-around

tire use especially in large sizes where heat buildup is a factor.

Naturally, the fleet operator is very much interested to know whether development of cold rubber will make possible a truck tire which will give him an appreciable gain in truck tire life. At the moment that is a very debatable question. When CCJ made its annual truck tire development survey several months ago, results of which appeared in the May issue, the large rubber companies took a definitely pessimistic view of cold rubber being used in large size truck tires and were definitely cautious about cold rubber generally. Since that time there appears to have been a little softening in their attitude.

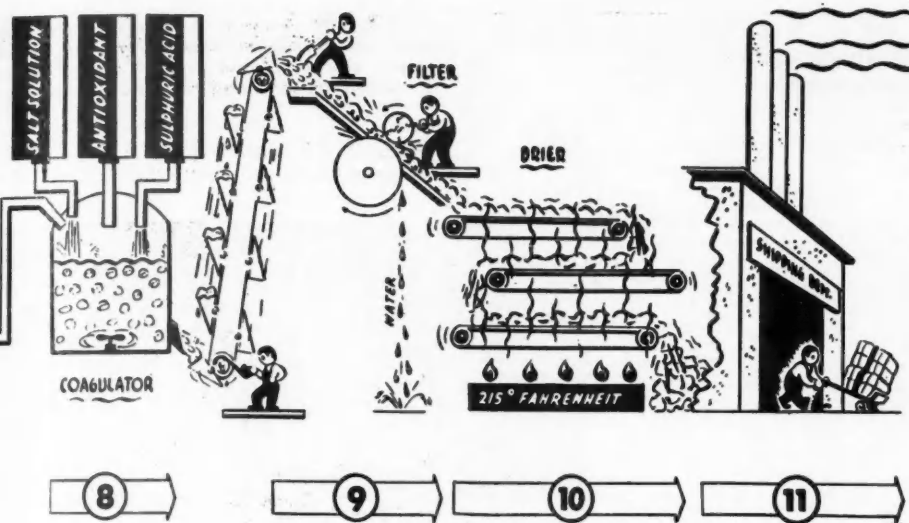
### Basic Ingredients Same as GRS

TO understand the whole picture of cold rubber, a little discussion about what it is and just what it does appears to be in order. Cold rubber is made of exactly the same ingredients as the GRS synthetic rubber; that is, butadiene, a petroleum product, and styrene, a derivative of coal. The essential difference, however, is in the

**By Leonard Westrate**

CCJ Detroit News Editor

manufacturing process. The old GRS rubber is manufactured at a temperature of about 130 deg. F, whereas the new cold rubber is manufactured at 41 deg. F. About half the superiority of cold rubber over the old GRS is due to the lower temperature in manufacture which was made possible by discovery of certain activators which reduce the reaction time to the same as that required for higher temperature GRS rubber. Coincident with the successful manufacture of low temperature rubber came development of a new type of carbon black known as furnace black which is credited with the other half of the improvement in wear quality of cold rubber. For some reason the same type black when used in connection with old GRS or natural rubber does not give the same improvement.



**FLOW CHART**, shows basic steps in processing cold rubber, and principal ingredients used. Refrigeration (at 41 deg. F) is induced at polymerizer (Step 5) giving cold rubber its name. Chart is based on huge Baton Rouge plant of Copolymer Corp. which produces 30,000 tons annually for Armstrong, Dayton, Gates, Inland, Lake Shore, Mansfield, Lee and Sears, Roebuck tires

**IN BRIEF:** Cold rubber is basically the same as GRS but its tread wear is about 25% better . . . Superiority comes from low-temperature processing and new furnace black . . . Heat generation under heavy loads is biggest problem . . . Because of short supply, most cold rubber is going to passenger car tires, but extensive tests with truck tires are underway . . . Still more improvements are in the works

#### Tread Wear Definitely Better

**I**N discussing the relative merits of cold rubber with the natural product or regular GRS there is no discernible dispute as to its superiority in tread wear. The claims vary all over the lot, of course, but it is generally conceded that 15 to 20 per cent improvement in tread wear over natural rubber and from 25 to 30 per cent over regular GRS is not too far out of line. An important point to be made here is that conflicting claims arise primarily because it is not always possible to determine just what the cold rubber product is being tested against. In other words, *what* is it "better than"?

Any manufacturer can make a slower wearing tread stock than his company is using, but to do so the amount of heat it will generate is in-

creased, and it is more likely to crack. Consequently, the comparison between the best cold rubber compound and a natural rubber tread compounded for the best balance between wear, heat resistance, and crack resistance would show up more favorably than when tested against the best natural rubber tread that could be built specifically for resistance to wear with the other factor subordinated.

#### Other Factors More Questionable

**W**HEN it comes to comparing cold rubber with GRS there is general agreement that it is definitely better in wear resistance. There is more dispute about its resistance to flex cracking and heat generation but the preponderance of opinion is that it is better than GRS in both respects.

The real argument flares up, however, when it is compared to natural rubber in resistance to cracking and heat generation. Proponents of cold rubber say that it is at least equal to natural in resistance to radial cracking, whereas other companies say that it is inferior. There is nothing conclusive on this point, but it appears that opinion is now shifting to the view that cold rubber properly compounded is about as good as the natural product in cracking resistance, but that it is not quite as good in regard to crack growth once a break occurs. The prevailing opinion, too, is that cold rubber is not as good as the natural product so far as heat generation is concerned. One drawback generally admitted for cold rubber tires is that it appears to be inferior to natural rubber tread in skid resistance at temperatures below freezing. This is offset to some degree, however, by its slightly better skid resistance on surfaces above the freezing point and by considerably better performance than natural rubber on wet pavement.

#### Costs Are About Equal

**A**FORTUNATE fact about cold rubber is that its cost is practically the same as that for the standard GRS. Both types of man-made rubber currently are facing very stiff competition from the natural product which in recent weeks has fallen to a point from 2 to 5¢ a pound below synthetic. However, with the government regulations requiring at least a minimum usage of 220,000 tons a year, with a large part of it to be used in tires, as a national security measure.

(TURN TO PAGE 132, PLEASE)

# THE STROH BREWERY CO. TRUCK INSPECTION REPORT

Truck No.	Mileage	Date																																																																																																																					
<table border="1"> <thead> <tr> <th>ENGINE</th> <th>CHECK HERE</th> <th>NAME</th> </tr> </thead> <tbody> <tr><td>Motor Oil</td><td></td><td></td></tr> <tr><td>Cartridge</td><td></td><td></td></tr> <tr><td>Adjust spark plugs</td><td></td><td></td></tr> <tr><td>Examine fan belts</td><td></td><td></td></tr> <tr><td>What is breaker point gap?</td><td></td><td></td></tr> <tr><td>Oil generator each end 4 drops</td><td></td><td></td></tr> <tr><td>Oil starter motor two drops</td><td></td><td></td></tr> <tr><td>Put lub. on breaker cam</td><td></td><td></td></tr> <tr><td>Tighten motor support bolts</td><td></td><td></td></tr> <tr><td>Is compression even?</td><td></td><td></td></tr> <tr><td>Cylinder 1 2 3 4 5 6</td><td></td><td></td></tr> <tr><td>Check ignition wires</td><td></td><td></td></tr> <tr><td>Check tappets</td><td></td><td></td></tr> <tr><td>Check manifold nuts</td><td></td><td></td></tr> <tr><td>Clean air cleaner and lubricate</td><td></td><td></td></tr> <tr><td>Clean oil filler cap</td><td></td><td></td></tr> <tr><td>Does motor choke properly?</td><td></td><td></td></tr> <tr><td>What is oil pressure?</td><td></td><td></td></tr> <tr><td>Are there any oil line leaks?</td><td></td><td></td></tr> <tr><td>Check starter connections</td><td></td><td></td></tr> <tr><td>What is charging rate?</td><td></td><td></td></tr> <tr><td>Check rad, hose and clamps</td><td></td><td></td></tr> <tr><td>What is gravity of battery?</td><td></td><td></td></tr> <tr><td>Clean battery terminals</td><td></td><td></td></tr> <tr><td>Refill battery</td><td></td><td></td></tr> <tr><td>What is free movement of clutch pedal?</td><td></td><td></td></tr> <tr><td>Adjust clutch if necessary</td><td></td><td></td></tr> <tr><td colspan="3"><b>BRAKES</b></td></tr> <tr><td>Refill master cylinder reservoir to within one-half inch of top</td><td></td><td></td></tr> <tr><td>Check brake lining for wear</td><td></td><td></td></tr> <tr><td>Do brakes need taking up?</td><td></td><td></td></tr> <tr><td>Oil all brake rod pins</td><td></td><td></td></tr> <tr><td>Are there any brake line leaks?</td><td></td><td></td></tr> <tr><td>Adjust hand brake</td><td></td><td></td></tr> <tr><td>Check hand brake lining</td><td></td><td></td></tr> <tr><td>Oil B. K. Cyl. every 2,000 miles</td><td></td><td></td></tr> <tr><td>Dope Truck</td><td></td><td></td></tr> <tr><td>Dope hand truck</td><td></td><td></td></tr> </tbody> </table>			ENGINE	CHECK HERE	NAME	Motor Oil			Cartridge			Adjust spark plugs			Examine fan belts			What is breaker point gap?			Oil generator each end 4 drops			Oil starter motor two drops			Put lub. on breaker cam			Tighten motor support bolts			Is compression even?			Cylinder 1 2 3 4 5 6			Check ignition wires			Check tappets			Check manifold nuts			Clean air cleaner and lubricate			Clean oil filler cap			Does motor choke properly?			What is oil pressure?			Are there any oil line leaks?			Check starter connections			What is charging rate?			Check rad, hose and clamps			What is gravity of battery?			Clean battery terminals			Refill battery			What is free movement of clutch pedal?			Adjust clutch if necessary			<b>BRAKES</b>			Refill master cylinder reservoir to within one-half inch of top			Check brake lining for wear			Do brakes need taking up?			Oil all brake rod pins			Are there any brake line leaks?			Adjust hand brake			Check hand brake lining			Oil B. K. Cyl. every 2,000 miles			Dope Truck			Dope hand truck		
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LEFT The home-brewed 1000-mile inspection form is simple but unusually complete. Inspections are scheduled from Gasoline Record described in text and reproduced on page 210

BELOW The author post an entry in his giant ledger which tabs service data for each truck



Typical units for the fleet lined up in the storage area of the Stroh garage

By W. Van Geisen

Garage Superintendent, The Stroh Brewery Co., Detroit

## HOME-BREWED SIMPLICITY in Beer Fleet Maintenance

90-truck local delivery fleet operates with maximum efficiency on minimum of paper work and confusion

GOOD MAINTENANCE systems should always be based on personal needs. Accordingly we analyzed our needs prior to setting up our system so that it would mesh smoothly with the transportation problems of our particular business. The analysis showed that:

1. Our fleet maintenance problems are localized to one area—urban De-

troit. Obviously then the system needed none of the complexity of bookkeeping and administration attending diversified fleets. We could thus simplify our system, but we had to be careful not to oversimplify.

2. We had to adjust our program to meet the delivery demands of our particular business. Beer sales and deliveries are heaviest in the sum-

mer. For this reason we had to plan our major repair work during the off-seasons.

3. Because our operation is local most of the burden of maintenance falls directly on the shoulders of one man — the garage superintendent. Thus the program had to be simple enough to allow administration by (TURN TO PAGE 210, PLEASE)



# A Systematized Fleet Safety Program

BY THE BUREAU OF HIGHWAY SAFETY . . . NATIONAL COUNCIL

OF PRIVATE MOTOR TRUCK OWNERS, INC., WASHINGTON, D. C.

The

# Why and How



## of Handling Highway Hazards Due to Unusual Weather and Road Conditions

The

# Why

SAFETY TEXT No. 10

The

# How

SAFETY INSTRUCTION No. 10

**D**RIVERS must be taught to appreciate the extra hazards due to unusual weather and road conditions. Good driver-training can do much to prevent accidents from such causes, and the wise fleet owner will feature his Safety Program planning with special training and instructions to his drivers on such subjects as night driving, highway and grade-crossing hazards, driving during the winter months and in the holiday traffic.

It is obvious that more careful driving habits are required under unfavorable conditions than when the highways, the weather and the flow of traffic are normal.



It is therefore important for both large and small fleet operators:

To acquaint their drivers with the unusual difficulties or hazards which may be encountered;

To prepare the driver to cope with such emergencies as may arise by suggesting the precautionary measures which must be taken in each instance in the interest of safety.

The accompanying Instructions (or "HOW") contain the "Do and Don't" rules-of-the-road and advanced driving practices which must be stressed and observed to attain the maximum of safety under all conditions.

### Driving at Night

**N**IGHT driving at high speeds is dangerous and foolhardy.

It is unsafe to drive a vehicle at such a rate of speed that it cannot be brought to a full stop within the assured clear course ahead as revealed by its lights; or, in other words, **LIGHTS SHOULD NOT BE "OVER-DRIVEN."** Along with this cardinal rule, the following should also be observed:

1. Every vehicle should be equipped with two good headlights.

2. Headlights should be checked regularly to see that:

- (a) they are properly aligned and adjusted to the roadway;
- (b) they have clean lenses and reflectors; and
- (c) both filaments in the bulb (or bulbs) will burn.

3. Spare bulbs and fuses should be carried in the vehicle ready for emergencies.

4. Speed should be reduced when bright lights are confronted, and kept reduced until proper vision for the required clear distance ahead has been restored.

5. Vehicles should be driven at a speed consistent with their braking ability and the degree of visibility afforded by their headlights (under the particular road and weather conditions prevalent at the time).

**THE HEADLIGHT**—Headlights properly focused and with the beams of light properly adjusted greatly facilitate safe night driving. When pointed too high, however, they may provoke an oncoming driver to keep his light beams high, causing temporary blindness and resultant danger and discomfort for both parties.

(TURN TO NEXT PAGE, PLEASE)

No. 10 HANDLING HIGHWAY HAZARDS

**NIGHT BLINDNESS**—To look directly into a beam of light is blinding. To do so repeatedly will result in what is known as night or "glare" blindness, a frequent cause of collisions, driving off the road, running into bridge abutments and other stationary objects, or running down unseen animals or pedestrians.

Glare blindness and failure to see objects ahead while driving at night is likely to increase with the age of the driver. Thus, ocular examinations for drivers, at least once a year, are recommended.

**FOG**—Use DIM or LOW BEAM lights in heavy fog. It will permit better road vision without reflected glare.

Bright lights will not penetrate the fog and should not be used as the rays will be reflected back into the driver's eyes.

It is also a wise precaution to REDUCE SPEED and SOUND THE HORN frequently when driving through fog.

**FATIGUE**—Night driving increases eye strain. Eye strain causes fatigue, and fatigue causes accidents.

Persons engaging in much night driving should take advantage of every opportunity to rest their eyes. If they find themselves becoming drowsy or sleepy, they should pull off the highway and take a nap or otherwise relax.

**NIGHT DRIVING COURTESY**—COURTESY should always be a MUST in driving, particularly at night.

Drivers should be instructed to observe the following simple rules for courteous night driving:

1. When your "bright" lights are on, switch to lower "or passing" beam lights immediately when the other fellow's "bright" lights bother you.
2. Pass oncoming vehicles with your "dimmers" or low beam lights on. This is not only the courteous thing to do; it will give better illumination immediately ahead and help to combat light glare.
3. Turn lower beam lights on at dusk so that oncoming drivers or pedestrians may see you. (It is better to be 20 minutes early with your lights than 20 minutes late.)
4. When turning right on curves use your lower beam or "dimmers". Bright lights may force an oncoming driver off the road or make him "hug" the center of the roadway to avoid driving off.
5. Switch to low beam lights when driving through a city or town.
6. Turn on "parking" lights when parking if vehicle cannot be plainly seen at night.



#### Unusual Highway Hazards

**BRIDGES**—Bridge abutments, being often narrower than the normal width of the road, form a bottleneck and create an unusual hazard, particularly at night or when visibility is poor.

Every bridge should be a warning for a driver to slow down and proceed with caution.

Maximum bridge loads are usually plainly marked on large bridges, but often there is no indication of the safe capacity of a small bridge. The driver must know the approximate gross

weight of his vehicle so that he may determine whether it is safe for him to cross.

**UNDERPASSES**—Most underpasses are marked as to height clearance, but here again the driver must know the overall height of his vehicle and load, so that he will not attempt to drive through insufficient clearance. It must be remembered that snow and ice reduces the clearance.

Speed should be reduced while driving through an underpass because the very nature of the structure may not provide adequate clearance to pass an oncoming vehicle. This applies particularly to underpasses that have arched ceilings.

**ROADS UNDER REPAIR**—Frequently drivers are suddenly confronted with construction or repair work on highways which calls for alertness, keen observation and absolute control of their vehicles in order to avert a mishap.

Temporary road surfaces such as loose gravel, dirt or crushed rock, and road blockades in the form of wooden "horses," flares or barricades of various kinds may be encountered with very little advance notice. Such stretches of road should be approached with caution—for trouble usually lies ahead, and a single lane of the highway may be carrying two-way traffic.

**DETOURS**—The poor road-bed, the unfamiliar sharp turns, the many drain culverts customarily found in country detours require the driver's careful attention. Elevated places over drain culverts as well as deep depressions must be crossed very slowly to avoid severe bumps which might damage the vehicle or cause the driver to lose control.

The passing of other vehicles on narrow detours is to be discouraged, and no attempt should be made to make up time on a detour.

**TREES**—Many trees are left standing adjacent to the highways for sentimental reasons. If not plainly marked or visible, they are definite hazards. Slow down when it becomes necessary to pass another vehicle at such a place. Watch out for overhanging branches.

**WIND STORMS**—When caught on the highway in a severe wind storm, it is good practice to park your vehicle until the worst is over. Get into the lee of the wind behind a small rise—this is the safest spot and affords the best protection.

Do not park in the vicinity of large trees which may be blown onto the highway or fall upon the vehicle, or in cuts where overhead banks contain loose rocks, boulders, etc.

**WILD LIFE**—Flying birds, running deer and other livestock crossing the highways at night lead to many accidents. While driving through game country at night, drivers should be alert for running animals or birds on the wing.

Bees, wasps and hornets also often like to "hitch" a ride. Drivers should pull off to the side of the road and let them out of the cab—not fight them while the truck is moving.

#### Railroad Grade Crossing Hazard

Impress drivers with the need for extreme caution when a grade crossing is encountered. The time-proven watchwords of "Stop, Look and Listen" are still paying dividends.

As most grade-crossing accidents are caused by unsafe driving practices, the problem calls for immediate review and observance by your drivers of all state and municipal laws governing railroad grade crossings. It is also recommended that you impress upon your drivers the following important "Don'ts" in this connection:

1. DON'T change gears while crossing. (It is recommended that the vehicle be put in second gear before crossing tracks.)
2. DON'T attempt to overtake other vehicles while on the crossing.
3. DON'T start to cross so as to just miss the last step of the passing caboose. The train nearest you may hide another, so make sure no train is com

ing from the opposite direction before starting up.

4. **DON'T** try to beat the train to the crossing under any circumstances.

5. **DON'T** let familiarity with train schedules fool you.

6. **DON'T** fail to be particularly alert at crossings on hills, curves, or where vision is in any way obstructed; or when driving under adverse weather conditions.



### Winter Driving

Winter months, with their ice, snow, rain, mist and fog, create special hazards and problems for the truck operator. The accident frequency rate is much higher in the wintertime due mainly to inadequate traction and reduced visibility. Such hazards can be overcome only by exercising safe driving habits not necessarily required when road and weather conditions are more favorable.

Good planning will do much to avoid winter accidents and the careful operator will feature his planning with instructions to his drivers on the following:

**STARTING**—It is often difficult and hazardous to start a vehicle on slippery ice or snow or wet road surfaces due to spinning wheels and side-slipping. It will be found helpful under severe conditions to start in one of the higher gears, at the same time engaging the clutch very slowly and feeding just enough fuel to the engine to get the vehicle in motion. If sand is carried as an aid to starting (or stopping), care must be taken to see that it is dry and ready for prompt use.

**STOPPING**—Stopping is a far greater winter problem than starting. The hazards incidental to stopping can best be overcome by the practice of slowing down at a much greater distance from the desired stopping point than is customary. It is safe practice to use the engine to decelerate and to exert light pressure on the brake at first, releasing it almost immediately, and then repeating the operation until speed is gradually reduced without locking wheels or causing a skid. The clutch should not be disengaged until the vehicle has almost come to a stop, but care must be used not to stall the motor and thereby lose control over the vehicle.

**CURVES**—Slippery turns or curves are particularly dangerous. The safe way to approach them is to slow down as though a traffic light or other stop signal is ahead, reaching the beginning of the curve at slow speed, then applying slightly more engine power to the wheels while making the turn to decrease the chance of skidding.

**CHAINS**—When snow or ice is encountered, tire chains are a definite safety aid if vehicles so equipped are operated carefully. They are especially helpful in giving added traction to prevent

side-slipping on icy curves and when driving through deep snow. But, drivers should be most emphatically cautioned against the mistake of thinking that the use of chains will compensate for fast driving on slippery roads and make it safe.

**TIRES**—Winter driving can be especially hard on tires, which often develop tread weaknesses due to spinning and excessive use of chains or side-wall defects from operation in deep icy ruts. Tire wear can be reduced and safety increased by adherence to moderate speed, careful and cautious starting and stopping, avoidance of skidding, and the prompt removal of tire chains after they have served their purpose. Partial deflation of tires from their normal pressure in an attempt to increase traction is questionable and *not* recommended by those who have made a special study of this practice.

**VISIBILITY AIDS**—Modern defrosters and windshield wipers, when kept in proper operating condition, can practically eliminate the hazards of poor visibility caused by ice, sleet, rain or mist. No vehicle should be operated without an efficient windshield wiper in order to provide best possible visibility for the driver; and, vehicles not equipped with defrosting devices need special care in operation during freezing weather. Accumulation of ice on a windshield can be retarded by a coating of alcohol or glycerine and, on vehicles with side-opening hoods, by raising the top of the left side of the hood slightly with a block of wood or similar object so as to direct the heat of the engine toward the windshield.

**EXHAUST LEAKS (Carbon Monoxide)**—The dangerous effects of carbon monoxide—an odorless, tasteless and colorless gas discharged through the exhaust system—constitute a special hazard during periods of cold weather when drivers are prone to seek the comforts of a closed, warm cab. Carbon monoxide poisoning can seriously affect a driver's judgment and physical coordination even if he is not completely overcome by it. The following precautionary measures are important:

- Keep the engine in the best operating condition.
- Keep exhaust manifolds, gaskets and mufflers tight.
- Keep floor-boards tight and well insulated between engine compartment and cab.
- See that exhaust tail-pipe discharges at a location which will not allow fumes to enter the cab.
- Provide adequate cab ventilation at all times.
- Avoid following too closely other vehicles having smoking exhausts.
- Pull off the highway, stop, open the cab and get fresh air at the first sign of drowsiness, dizziness or head pains. (If dizziness persists, the driver should notify his supervisor of his condition and receive medical attention.)

Efficient and safe-minded operators are soon convinced that winter accidents can be prevented to a large degree if this season of hazardous driving is approached with proper respect. They will do all in their power to instruct and educate their drivers to adjust speed to prevailing conditions, to be doubly careful when slowing down or stopping, to beware of side-slip on high-crowned roads, to follow other vehicles at safe distances, and to be especially alert to danger when passing other vehicles as well as be ready for unexpected actions of other drivers.

When these precautions are followed, many of the hazards of winter driving may be avoided.

### Holiday Hazards

Along with the usual driving difficulties of the winter months, the dates between December 20 and January 2 (often referred to as the "holiday period") offer certain additional traffic hazards worthy of attention by all motor vehicle operators. It is during this period, when the holiday spirit generally prevails, that the

(TURN TO NEXT PAGE, PLEASE)



safe driver takes no chances and pays extra attention to his own driving conduct and to the actions of others.

The "defensive" driver at this time of year will be particularly watchful and on guard for—

Pedestrians laden with packages which may interfere with their vision and impede their movements;

Pedestrians or other drivers who are inattentive and in a hurry because of last minute Christmas shopping problems;

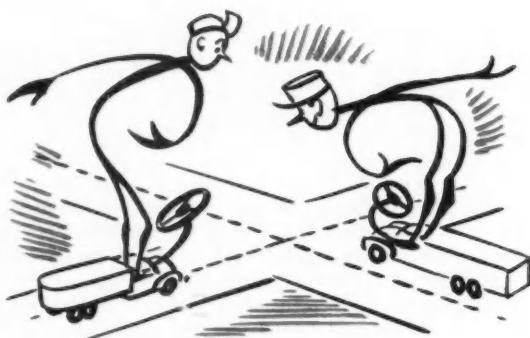
Children playing in the streets and on the highways as a result of the school holiday—many of whose attention will be distracted by trying out new Christmas toys and games;

The "over-indulgent celebrator" who is too full of good cheer to be careful, and who has forgotten that slogan—"If you drive, don't drink, and vice-versa";

Visitors and "jay-walkers" not acquainted with local traffic conditions and hazards.

Dense traffic and improperly parked vehicles.

While the truck operator is safeguarding himself from the above hazards created by others, he should not forget that he, too, may be influenced by similar conditions and, if not careful, may find himself doing some of the same things.



#### Safe and Courteous Practices for All Times

Unfortunately, there are still a great many thoughtless and discourteous drivers on our highways today. The commercial motor vehicle operator, who makes driving his livelihood, has a splendid opportunity by precept and example to educate the general public in safety and highway courtesy.

The good driver will accept the following as his "catechism" for good conduct on the highways:

1. Drive only at a speed consistent with road surface, traffic and visibility.

2. Be particularly alert for pedestrians on the open road, at, and between intersections, as nearly half of all traffic fatalities involve people on foot.

3. Be prepared for the reckless driver who ignores traffic signals by slowing down at every intersection where vehicles are approaching or where vision is obscured.

4. When some driver insists upon "hogging" the right-of-way, let him take it.

5. When a driver attempts to pass and misjudges the space available or if a driver foolishly tries to pass on a hill or curve, drop back and let him into line.

6. If an approaching driver, in passing other cars, has difficulty in getting back into his own lane, slow down for him.

7. If the driver behind is over-anxious to get around your vehicle, pull over and let him pass.

8. Keep your temper at all times—you cannot be angry and be a safe driver at the same time.

A prudent driver is always ready to prevent an accident by courteous and generous action when the other fellow has made a mistake. He is patient and arrives safely at his destination because he is willing to give way to arrogant, aggressive and careless drivers. He is always willing to pay for his own protection and the protection of others by his unselfish attitude and consideration for the thoughtless acts of others.



## SAFETY INSTRUCTIONS

In This Highway Safety Program  
for Commercial Vehicle Operators

THIS ISSUE: Unusual Highway Hazards

PRECEDING ISSUES:

Management Responsibility  
Driver Responsibility  
Driver Selection, Training and Supervision  
Accident Reports and Records  
Human Engineering  
Visual Information . . . Contents . . . Awards  
Group Safety Meetings . . . Development of  
Safety Committees  
First Aid Training  
Conservation of Equipment

SUCCEEDING ISSUES:

Fire Prevention  
Safety Through Courtesy . . . Defensive Driving

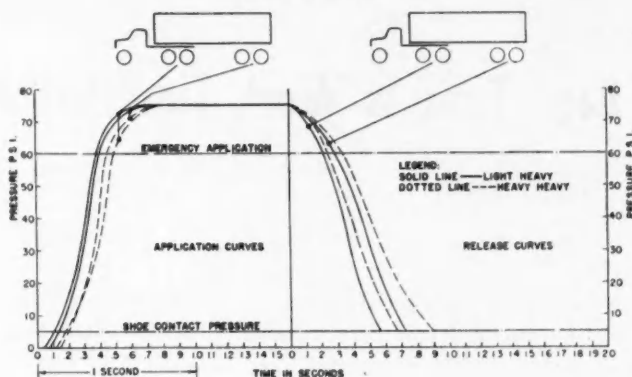
#### Your Own Highway Safety Program

This and other installments are arranged for easy removal and insertion in standard three-ring binder.

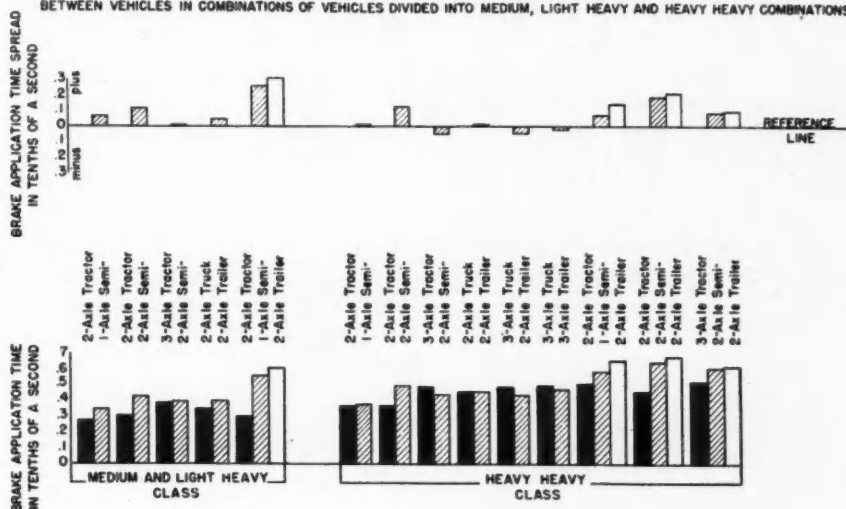
Save them! Use them!

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AIR TRANSMISSION TIMES FOR 6 WHEEL TRACTOR-TANDEM AXLE SEMI-TRAILER  
LIGHT HEAVY AND HEAVY HEAVY



BRAKE APPLICATION AIR PRESSURE BUILD-UP TIMES FROM PEDAL TO 60 PSI AND SPREAD IN BRAKE APPLICATION TIME  
 BETWEEN VEHICLES IN COMBINATIONS OF VEHICLES DIVIDED INTO MEDIUM, LIGHT HEAVY AND HEAVY HEAVY COMBINATIONS



(TURN TO PAGE 88, PLEASE)

# "Lag" Time is Work Time for AIR BRAKES\*

## New B-W units speed applications, cut weight

Chief Engineer, Bendix-Westinghouse Automotive Air Brake Co.

# "Lag" Time is Work Time for Air Brakes

Continued from Page 87

Figs 1 and 2 show air transmission times for two different combinations of vehicles, based on modern air brake apparatus and modern application of the air brake system to the vehicles involved.

These curves will show that much progress has been made in the reduction of brake application times and also in the spread in brake application times between vehicles in combinations of vehicles.

A summary bar chart of what can be expected in application times on vehicles in combinations of vehicles is shown in Fig 3. These times are based on using the modern D-1 brake valve on the tractor or truck and the modern RE-1 relay emergency valve on the trailers. Air transmission times, for the 2-axle tractor, 1-axle semi, 2-axle trailer combination, both light heavy and heavy heavy categories, can be materially improved as far as application times are concerned by the use of a large capacity relay emergency valve on the trailers, known as the RE-2 valve, which is still under development.

## New Apparatus

**A** TWO cylinder compressor having 12 cu ft displacement at 1250 rpm and which is known as Type "E" has been designed for both engine and self lubrication. It is intended to supersede the 3 cylinder 12 cu ft compressor.

A liberal use of aluminum in the head, block and crankcase permits this design to weigh only 30 lb as against 64 lb for the 3 cyl compressor, representing a weight saving of 34 lb.

The 12 cu ft "E" compressor designed into a compact package, is interchangeable in mounting with our two-cyl 7 $\frac{1}{4}$  cu ft compressor. New ring designs have been designed for our current line of compressors.

The new D-1 brake valve so designed and test proven that the capacity, both as to brake application

and brake release, is about four times greater than our D brake valve and about three times greater than the B-4 brake valve.

Because of this additional capacity, it makes it possible to eliminate the relay valve on practically all trucks (except 6 wheelers) and tractors. With the D and B-4 brake valves, (which the D-1 brake valve supersedes), the relay valve was required.

The treadle effort on the D-1 valve has been increased to .92 lb per one lb per sq in. pressure against .6 lb for the D valve.

Originally this increase was demanded and was favorably accepted but experience in the field has dictated otherwise and we are now furnishing this valve with a reduced treadle travel.

The weight of the D-1 brake valve with treadle is 9.5 lb which represents a saving of 5 lb over the old "D" brake valve-old "R" relay valve combination.

The "Rotochamber" functions the same as, and supplements our line of brake chambers.

The main advantage of Rotochambers, when compared to brake chambers, is that the same output force is developed with a considerably smaller outside diameter and that the output force remains uniform throughout the entire stroke.

An improved design of slack adjusters feature a positive lock design-



"It keeps belching."

ed to prevent the brake adjustment "backing off."

The modern relay emergency valve known as Type RE-1 supersedes the RE valve. It has approximately 100 per cent greater capacity than the RE valve and therefore will handle larger volumes of air in faster time on application and release.

Using the D-1 brake valve on the tractor and the RE-1 relay emergency valve on the trailer, you can secure a marked improvement in the overall brake performance of the tractor-trailer train combination. Weight of the RE-1 valve is 5.31 lb as against 10.12 lb for the old RE valve.

## Future Apparatus

**A** NEW governor is under engineering development and will supersede our present O-1 governor. We expect this governor to have increased service life. Its valves are protected by efficient strainers against dirt and other foreign matter. It employs a spring loaded diaphragm with differential area to obtain the desired cut-in and cut-out range. A number of these are already under field service trial.

An arrangement of various air brake devices mounted on a reservoir is under consideration and development. It offers interesting possibilities in the matter of simplifying the installation of the air brake system on a vehicle and offers possible economical advantage, both from an installation and maintenance standpoint.

A protection valve has been designed to seal off the straight air and emergency trailer connections on the tractor should they become disconnected or should the pressure in the tractor reservoir drop to 50 psi for any reason. At the same time it will vent the trailer emergency line thus producing an application of the brakes on the trailer automatically.

A large capacity relay emergency valve known as Type RE-2 has been designed functionally to be the same as the RE-1 valve, but the capacity is about 100 per cent greater than the RE-1 valve.

This valve is intended for use on motor transport vehicle trains of particularly heavy gross vehicle weight and extreme length and where great volume of air must be handled. Its weight is 7.19 lb.

END





## NEW BIG POWER *in Studebaker's medium-duty trucks!*

**SENSATIONAL** new "Power Plus" Studebaker trucks now offer you challenging opportunities for savings on your medium-duty hauling.

Yes, Studebaker's new 16A and 17A series trucks, with their new 100-horsepower Studebaker "Power Plus" engine, are rolling up remarkable performance records and economy records for many a firm in many diversified lines of business.

With 200 lbs. foot torque, these husky, handsome, new Studebakers are fast becoming recognized as America's stand-out 1½ ton and 2 ton trucks in pulling power and staying power.

What's more, every structural detail of these rugged medium-duty Studebakers has the stand-up stam-

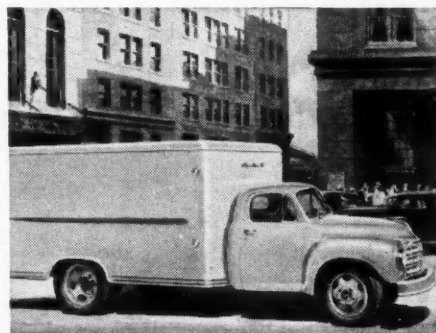
ina of Studebaker's wear-resisting master craftsmanship.

Full box-section cross members fortify the sturdy frames—and there's an exclusive Studebaker K-member up front for extra strength.

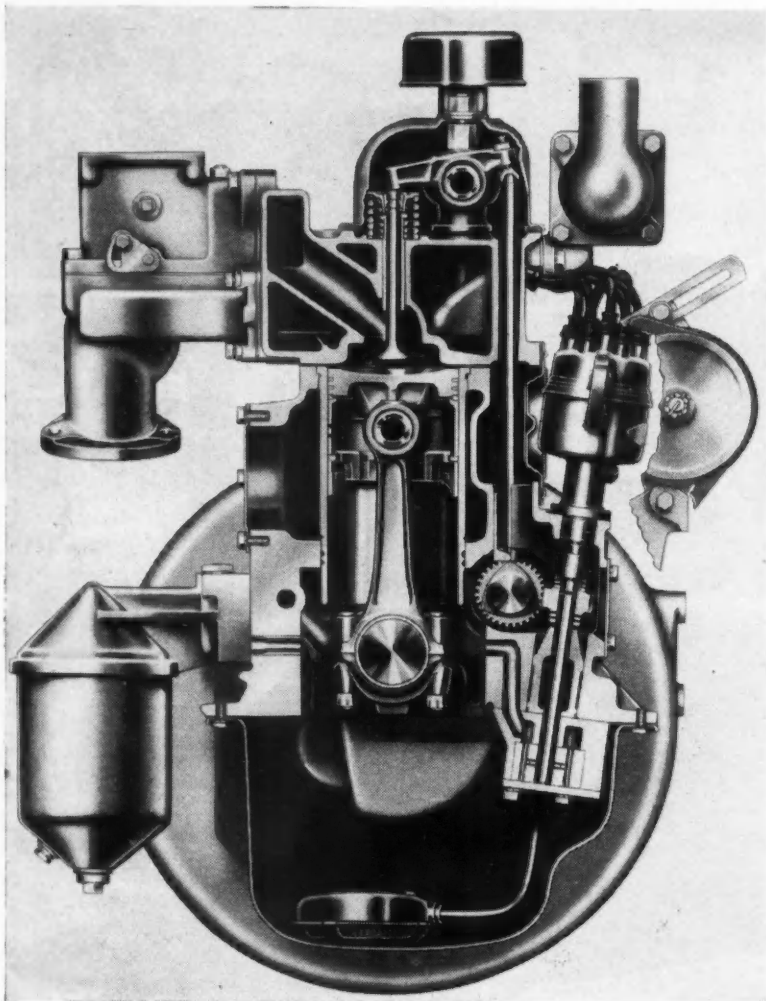
The frames have a "plus" of length for maximum load space. The rear axles, the rear and front springs, take the toughest kind of punishment in stride.

The new Studebaker truck cab is extra roomy and extra cool—a new marvel of comfort and convenience. Steps are enclosed inside the doors. New adjusto-air seat cushion is standard equipment.

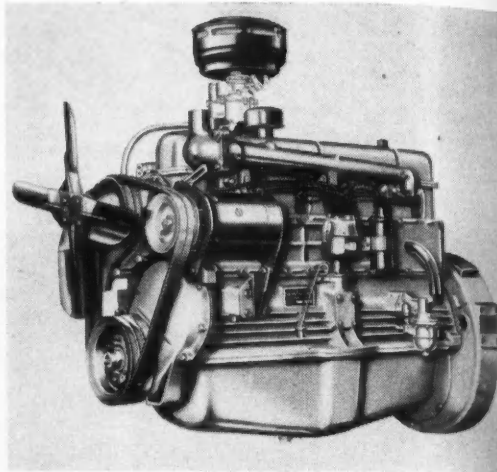
Stop in and see these "Power Plus" Studebakers—compare them against the field and you're sure to rate them tops in value.



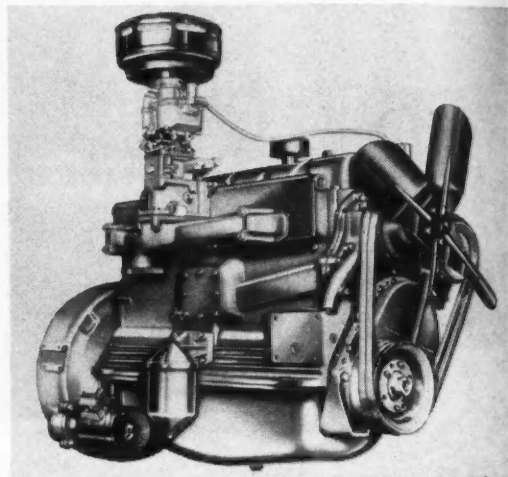
Studebaker 1½ and 2 ton trucks come in four wheelbases for 9 ft., 12 ft., 14 or 15 ft. and 17 or 18 ft. bodies. Be sure to see Studebaker's new ¼-ton, ¾-ton and 1-ton trucks, too—available with pick-up or stake bodies or as chassis for special bodies.



**ABOVE.** Cross-section of new 331 engine showing major design features



**TOP RIGHT.** Left side of engine showing location of principal accessories



**ABOVE.** Right side shows opening for optional oil cooler above oil filter

# New REO Engine Has

**First of three new models has 331 cu. in. displacement, develops 140 hp at 3200 rpm, and**

**V** REO MOTORS, INC., has just announced full details of its new Gold Comet engine, first of a new series of valve-in-head models featuring a number of advanced engineering details including wet cylinder liners and developing, according to company claims, more usable horsepower than

any truck engine of comparable displacement. Eventually the line will consist of three models of 331, 292 and 255 cu in. displacement with many parts interchangeable.

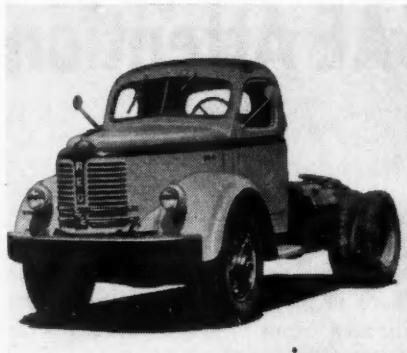
The 331, however, is the only model now in production. It has a square bore and stroke ( $4\frac{1}{8} \times 4\frac{1}{8}$

in.), develops 140 hp @ 3200 rpm and a maximum torque of 264 lb-ft @ 1000 rpm with only  $1\frac{1}{2}$  per cent loss @ 2300 rpm (see chart on page 150).

Although the engine is free from radical features of design, it is evident that it combines many of the latest developments into a balanced

# Reo's E-22 Series

Features New Front End—Better Accessibility



Concurrent to the unveiling of its new Gold Comet engine, Reo announced a new E-22 truck series consisting of five models in the 17,000 to 22,000 lb gvw range as trucks and in the 22,500 to 38,000 gvw range as tractors. These models replace the former D-22 series and are the first to be powered with the new engine.

While retaining the Reo "more-load" design (set-back front axle), the new models feature redesigned and more massive front-end treatment, improved cab interiors and strengthened frames.

Accessibility has been given special attention in the design of the hood which raises in a single piece from the bumper line, providing quick access not only to the engine but to the radiator as well. An easily removed floor panel in the cab, located between the door and the driver's seat, exposes the battery for easy checking and refilling.

The instrument panel has been rearranged in keeping with passenger car styling with all dials grouped at the left in front of the driver.

fitted into grooves in the sleeve. Sleeves are castings made of an alloy iron composition containing chromium, molybdenum, and copper. Hardness ranges from 229 to 269 Brinell as cast.

Pistons are Lo-Ex aluminum alloy and bronze-plated to reduce scuffing at break-in. They are fitted with two compression rings and an oil ring above the piston pin and an additional oil control ring below the full-floating pin. A unique feature of the piston is the concavely-machined dome on the 331 cu in. model shown.

Coming to the crankshaft assembly, the shaft is of seven-bearing type with integral counterweights and Tocco-hardened journals and pins. It is

## Condensed Specifications Reo Gold Comet Engine

Bore (in.)	4 1/8
Stroke (in.)	4 3/8
Displacement (cu in.)	331
No. cylinders	6
Compression Ratio	6.4 to 1
Governed HP*	140 @ 3200 rpm
Maximum Torque* (lb-ft)	264 @ 1000 rpm
Governed Speed	3200 rpm
Fuel Rating	75 octane
No. Main Bearings	7
Lube Oil Sump Capacity (Less Filter)	8 qt.

\*Without fan and muffler.

# Valves in Head

has many advanced features including "wet sleeves"

design of unusual modernity. In this respect the Reo engine is new in every sense and marks an important advance in heavy-duty engine conception.

As an aid in visualizing the details of this engine, let us examine it by logical sub-assemblies, referring to

the cross-section drawing (above left) for visual evidence.

The cylinder assembly starts with the wet sleeve which is inserted with light pressure into the pilots at the upper and lower ends of the block. The water seal at the lower end is provided by two Neoprene rings

of interest that the shaft is dynamically balanced to a tolerance of 1/4-oz in. All bearings are of precision-type, steel-back, with copper-lead bearing alloy. The thrust washer is of bronze, semi-circular in form, and fitting into a machined surface in the block face at the front bearing. The crankshaft has drilled oil passages in conventional fashion for pressure lubrication. No shims or adjusting means are required to control end-play since the close control of tolerances on the crankshaft and block takes care of this feature automatically.

The crankshaft assembly includes a Houde viscous vibration damper and one-piece Neoprene oil seals at the front and rear, the latter made possible by mounting the seal on the O.D. of the small diameter crankshaft flange.

The camshaft is of cast alloy and mounted in 4 bearings. The cam base circle is 1 1/2 in. diameter, cam (TURN TO PAGE 150, PLEASE)



# Bigger Engines, Gas Turbines, Corrosion Get SAE Attention

▼ FROM THE FLEET point of view, highlights of the SAE Summer Meeting at French Lick centered around discussions of new engine developments, including the gas turbine, and corrosion problems. Unfortunately many of the stimulating round-table discussions were labeled "strictly confidential" leaving reporters with their hands tied, and all but the handful of fleetmen present at each out in the cold.

In a paper entitled "An Evaluation of Present Trends Toward Larger Power Plants," Merrill C. Horine of Mack showed that when proposed formulas for gradeability are applied to the really big jobs, the size of engines becomes fantastic. In the discussion it was pointed out that no practical formula now exists. A representative of the Public Roads Administration mentioned that the latest thinking at top level is to solve the problem by road design rather than engine size. What they are doing experimentally is to create three-lane highways on grades with the right lane for trucks, the center lane for passenger cars.

## Gas Turbine Pros & Cons

**WILLIAM A. TURUNEN**, General Motors Research, presented a study of the possibilities of the gas turbine for motor cars and trucks. We hear a lot about this and the general impression is that the gas turbine is in the bag. According to Mr. Turunen, however, in its present state of development the gas turbine leaves a lot to be desired and cannot be considered as a practical power plant in the near future.

One of the major problems is high fuel consumption, particularly at part throttle. Expensive and extensive controls and limiting devices are necessary. Space requirements appear to be large, although this may not be a

serious problem in motor trucks. Low first cost and lower maintenance cost appear to be questionable, although there is no practical data available. In any event, the gas turbine for trucks is still in the talking stage.

New engine developments were very much in the picture and although the gas turbine report was not enthusiastic, one can't discount its future course considering the speed with which such developments sometimes mature. On the other hand the meeting brought to the fore several competitors to the gas turbine and the reciprocating engine—in the form of the free-piston-turbine combination and the compound engine.

The latter may be likened to an aircraft engine with turbocharger in which a small gas turbine takes waste exhaust energy and converts it to useful work returned to the main engine. Since some arrangements of such powerplants may return 7 to 8 per cent or possibly more of the energy now wasted, the compound powerplant offers a practical means of greatly improving the thermal efficiency of the reciprocating engine.

## Corrosion Problems

IN a discussion of aluminum cylinder heads Messrs. Daugherty and Koenig of the Aluminum Company of America claimed that the competitive situation now existing favors the re-adoption of aluminum heads. They highlighted two major problems that plagued vehicle owners before the war—difficulty of removal of aluminum heads resulting from corrosion at stud clearances; and corrosion at coolant inlet ports.

It was claimed that corrosion of water inlet ports can be eliminated by simple methods. This corrosion results from galvanic action between the head and block. The authors say that the electric potential that pro-

motes corrosion can be materially reduced by using an aluminum alloy containing an adequate concentration of copper and limiting zinc to no more than a few tenths of a percent. Moreover, the alloy should be used either in the as-cast condition or solution heat treated. Another means of reducing corrosion is found in the design of protective cylinder head gaskets which cover the port shoulders on the head and preferably extend into the ports.

To prevent sticking of heads due to corrosion around studs, Alcoa recommends the use of cap screws, larger stud clearances, and stud compounds. From the standpoint of inhibitors, Alcoa claims that iron corrosion is the chief item to be controlled. Hence they recommend soluble oil as the best inhibitor.

The paper entitled—"Corrosion Problems of the Automotive Engineer" by LaQue and Hergenroether of The International Nickel Co., touched on two matters of great interest to fleetmen—cylinder liners and mufflers. Since mufflers and tailpipes are subject to corrosion both inside and out, the authors recommend the use of highly corrosion-resistant materials such as Inconel and stainless steels. The life of conventional mufflers will increase directly with the thickness of the steel so that life can be doubled simply by doubling the gage.

Steel coated with aluminum by hot dipping or aluminizing appears to be at least twice as durable as bare steel. Zinc coating of steel will extend its life a little, depending upon the thickness of the coating. Terne plate is slightly more durable than bare steel but Corronized steel approaches the life of aluminized steel and is claimed to be superior to zinc coated steel or terne plate.

Coming to cylinder liner corrosion, the authors offer an ingenious theory based upon damage due to accelerated cavitation erosion. If this is accepted, they recommend a re-check of mechanical design to reduce vibration to a minimum; maintain cooling water at maximum pressure and temperature; introduce air bubbles into the cooling system to cushion cavitation blows; and reduce the corrosion phase of cavitation erosion by using liners of Ni-Resist or other austenitic cast irons; and by using plenty of chromate inhibitor.



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Model 65M2 Federal tractor  
with 200 H. P. gasoline engine  
gross rating 66,000 lbs.

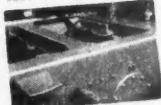
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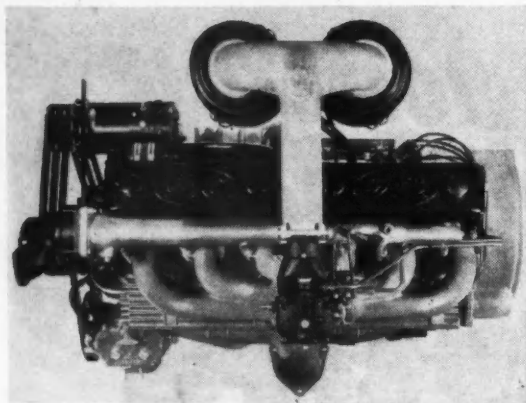
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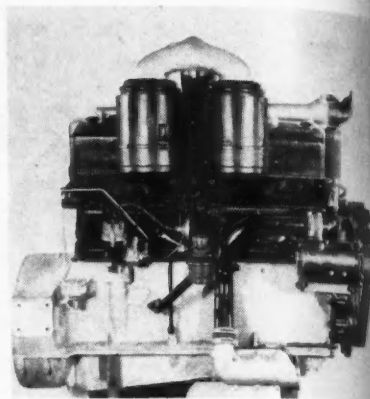
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**LEFT** Top view shows arrangement of aluminum intake manifold stainless steel and air intake tube across top



**RIGHT** Right side reveals twin air cleaners, aluminum crankcase and oil pan

# GMC's new 707 Gasoline Engine . . .

WITH the introduction of its new heavy-duty truck line (June CCJ, page 90), GMC Truck & Coach Division of General Motors Corp. has added a new 707 cu in. engine, the largest gasoline model yet offered by this maker. It is a 6-cyl, valve-in-head job with a rating of 225 gross bhp at governed speed of 2200 rpm. Its compression ratio is 5.75 to 1.

Among its most interesting features are:

One-piece cast-alloy-iron cylinder block.

Replaceable dryliners of special analysis chrome-nickel-alloy cast iron.

Separate cast aluminum alloy crankcase.

Single-piece aluminum casting intake manifold with individual cylinder ports.

Three-piece exhaust manifold of stainless steel casting, fitted with slip joints.

Automatic hydraulic valve lash adjusters, mounted on the upper end of the push rod.

Five-ring aluminum-alloy pistons.

Six-valve fuel pump of unusually high capacity.

Other more familiar features include seven-main bearing crankshaft, Tocco hardened and fitted with an external harmonic damper of bonded rubber; directed flow water circulation which includes full depth water

**Combines novel weight and wear-saving features with sound, time-proved engineering standards**

jackets around each cylinder; positive crankcase ventilation providing for a return through spring-loaded valves to inlet ports; and sodium-cooled exhaust valves fitted with rotators.

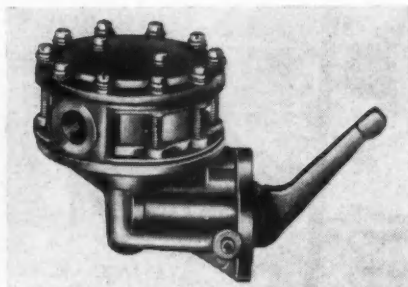
The two interchangeable cylinder heads are cast of special chrome-nickel alloy iron, and exhaust valve seats are of hard alloy steel, faced with Stellite. The oil pan, like the crankcase, is aluminum and ribbed on the under side to provide radiating area for oil cooling. The oil pump is

located above the rear cover, can be removed through the rear opening and discharges oil through an oil cooler before it enters the main oil gallery. There is also an oil filter mounted on the opposite side, fitted with a metering hole to reduce pressure.

Pistons are castings of low-expansion aluminum alloy, heat-treated with special stepped-dome head to control combustion. They are cam-ground and fitted with *five* rings, consisting of chromium-plated top compression ring, taper-faced second and third compression rings, a heavy-duty oil control ring all above the pin and a continuous channel oil control ring below the pin.

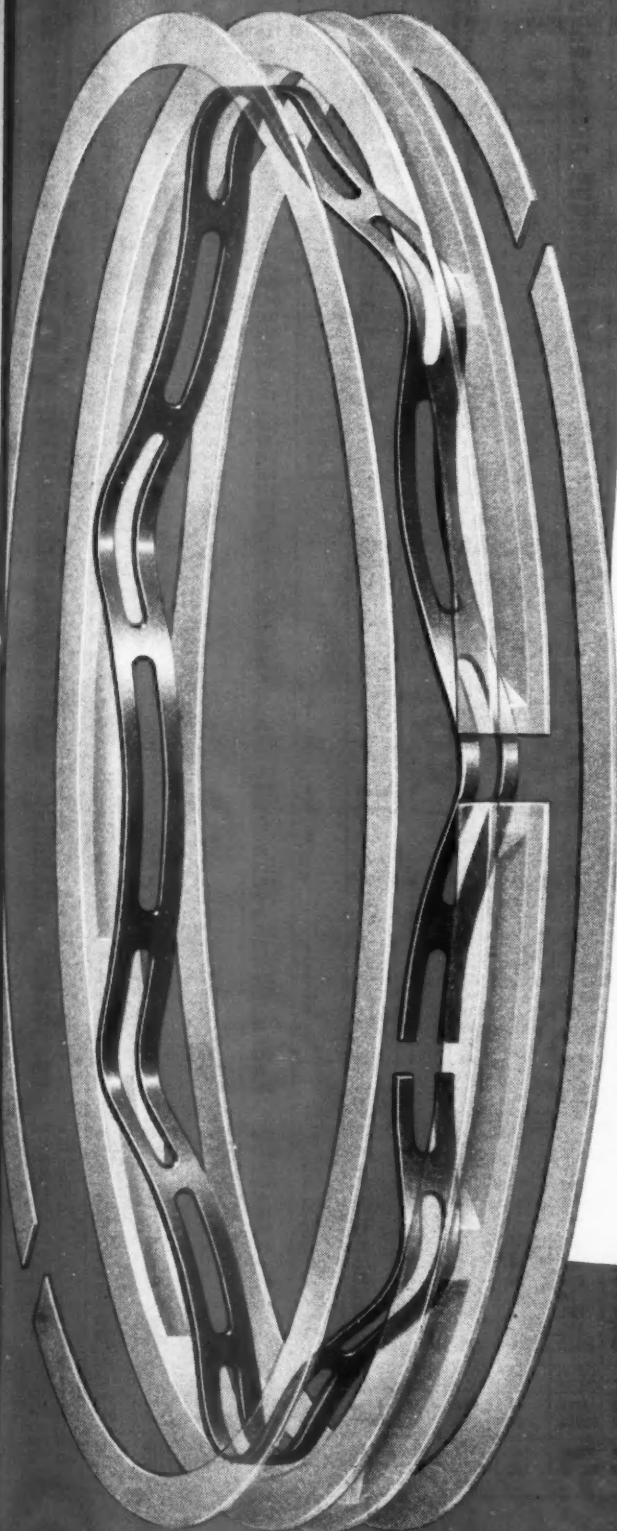
The valve operating mechanism, in addition to the hydraulic valve lash adjusters at the top of the push rods, includes other items of interest. The barrel-type valve lifters are of heat-treated cast iron, Granoseal-coated, and are hollow for lightness. They operate in individual cast-iron guides.

(TURN TO PAGE 213, PLEASE)



**SIX VALVE** fuel pump has three intake and three outlet ports to assure maximum fuel flow when needed

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Works even in tapered and out-of-round bores.

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PISTON RINGS

BEST IN NEW TRUCKS!

BEST IN OLD TRUCKS!



# New Truck Registrations by Makes by States\*

STATE	Auto-car	Brookway	Chevrolet	Diamond T	Divco	Dodge	Federal	Ford	FWD	GMC	International	Kenworth	Mack	Pontiac	Reo	Stearns	Studebaker	White	Willys	All Others	Total
Alabama	April 1		755	3		205	2	333		179	108		5		3		95	6	67	3	1,768
Arizona	4 Mos. 1		2828	11	3	707	7	1072		577	481		24	1	18		394	40	271	21	6,428
Arkansas	April 1		188	1		58		116		44	26				1		33	2	42	3	518
California	4 Mos. 1		579	3	7	196	2	338		113	105	2	2		14	2	135	7	88	20	1,618
Colorado	April 2		1152	6		885	1	557		285	179				10		157	2	90	3	2,961
Connecticut	4 Mos. 2		3687	31		885	1	1816		755	584		6		63		561	21	515	17	5,948
Delaware	April 10		1515	12	51	391	1	504		362	271	10	13		5		273	61	116	14	3,512
District of Columbia	4 Mos. 37	17	6409	72	155	2243	9	2537	4	1741	1191	38	53		57	21	1316	148	528	91	10,568
Florida	April 4		437	8		149	2	217		120	114		1		6		75	4	66	1	1,201
Georgia	4 Mos. 4		1455	32	6	536	3	682		375	420		1		10		251	18	261	6	4,098
Idaho	April 6		242	6	12	68	3	124		39	63		23		1		38	3	25		2,191
Illinois	4 Mos. 20	8	725	26	23	285	9	342	1	172	237		46		14		139	8	90	15	2,981
Indiana	April 4		106	3		27		55		20	31		2	1	2		10	2	3	1	308
Iowa	4 Mos. 2	3	347	9	1	120	2	197		78	105		2		2		38	10	20	3	608
Kansas	April 4		82	1	6	18	2	63		22	7		5	2	2		8	1	7	2	230
Kentucky	4 Mos. 24	2	276	6	16	120	14	225		68	87		18	2	8		22	49	23	6	964
Louisiana	April 4		592	8	3	284		269		111	96		15		2		70	13	80	2	1,568
Maine	4 Mos. 1		1892	46	22	609	5	879		358	459		58		28		281	44	288	23	4,871
Maryland	April 4		502	16	1	194	3	349		121	131		8		13		83	8	86	4	1,498
Massachusetts	4 Mos. 2	1	3273	63	1	1112	10	2138		656	943		75	2	71		563	79	492	20	9,501
Michigan	April 1		162	12		57	1	79		64	79	11	1		2		61	3	40	1	574
Minnesota	4 Mos. 1		560	25		205	1	263		179	221	24	5		12		206	4	198	15	1,823
Mississippi	April 6	2	1297	43	15	450	1	668		238	375		12	6	22		200	30	110	11	3,467
Missouri	4 Mos. 44	3	5916	230	96	2034	30	2820	13	1115	2252		71	6	135	2	940	270	586	65	16,628
Montana	April 4		675	9	20	263	2	309		160	242		1	3	8		170	22	75	8	1,972
Nebraska	4 Mos. 5	3	2199	38	56	782	11	1153		617	976	1	20	3	44		643	109	279	39	6,978
Nevada	April 3		929	23	2	321	1	433		137	301		8	4	5		135	4	94	9	2,413
New Hampshire	4 Mos. 3		3012	70	17	1025	4	1403		468	1014	1	26	6	30		474	22	388	33	7,968
New Jersey	April 4		922	15	7	239	12	370		225	267		2	4	15		153	8	66	7	2,312
New Mexico	4 Mos. 1		2621	41	13	746	19	1093		500	755		2	4	34		441	19	214	20	5,823
New York	April 4		788	11	3	228		437		199	181		7		5		100	9	191	5	2,124
North Carolina	4 Mos. 2		2450	43	15	691	8	1221	1	548	597		18		26		328	43	684	16	6,091
North Dakota	April 4		493	6		154		337		133	116		3		4		85	11	35	4	1,382
Ohio	4 Mos. 2		2024	38	9	646	3	1273		472	491		16	1	12		390	27	207	29	5,640
Oklahoma	April 4		185	3		55		91		64	48		10		3		32	1	16	1	507
Oregon	4 Mos. 4	8	828	3	5	228	4	421		234	256		23		31	1	137	23	102	7	2,315
Pennsylvania	April 2	4	378	4	3	130	4	173		216	327		15	1	6		138	44	106	18	3,668
Rhode Island	4 Mos. 20	21	1291	16	24	502	15	596		67	122		48	1	20		82	42	31		1,298
South Carolina	April 15	8	400	6	23	181	1	258		87	131		11		32	4	246	68	126	12	4,243
South Dakota	4 Mos. 55	30	1338	23	50	566	5	870	4	275	431		78	1	11	13	157	15	76	14	3,082
Tennessee	April 5		1182	10	11	368	3	796		205	184		12	3	39		619	6	39	5	10,782
Texas	4 Mos. 17	3	4432	45	66	1346	28	2207		845	770		46	3	4		819	29	197	31	17,971
Utah	April 12		636	11	4	208		370		154	195		5	3	4		679	29	197	31	6,851
Vermont	4 Mos. 40		2415	41	21	777	10	1263	4	545	952	5	25	6	6		78	4	52	4	1,622
Virginia	April 4		671	6		204	1	331		580	423		13		15		292	13	312	13	5,848
Washington	4 Mos. 1		2569	19		713	1	1006		144	146		9	1	16		97	23	94	2	1,885
West Virginia	April 4		819	2	3	210		289		144	146		9	1	16		97	23	94	2	1,885
Wisconsin	4 Mos. 5	1	3645	30	27	1078	1	1389		682	759		27	1	50		421	68	383	24	8,688
Wyoming	April 4		340	13		93	2	165		111	95		1	1	8		80	4	96	5	1,013
Total	4 Mos. 1		1071	41	1	336	7	506		337	405	8	1	1	27		243	7	428	6	3,428
Alabama	April 4		591	24	2	158	1	318		126	221		2	2	2		117	5	115	1	1,685
Arizona	4 Mos. 1		1985	123	2	623	6	940	5	424	748	9	9	2	11		395	30	500	29	5,842
Arkansas	April 4		40			17		33		16	8				2		20		14	1	151
California	4 Mos. 1		151	2		57		101		51	30		3		3		61		40	1	487
Colorado	4 Mos. 3	5	90	2	1	31		63		22	27		5		1		12	1	14		289
Connecticut	4 Mos. 11	11	475	11	8	162	1	325		107	155		23		9	1	55	5	88	4	1,417
District of Columbia	4 Mos. 56	69	709	23	12	236	7	354	1	198	202		33	1	9		89	24	61	10	1,961
Florida	4 Mos. 1		2320	49	82	899	31	1133	5	694	743	1	135	1	36	1	308	101	316	44	7,694
Georgia	April 4		200	6		67	1	88		55	55		4		32		32	3	11	3	525
Idaho	4 Mos. 1		759	15	2	236	1	289		187	138		6		1		133	9	57	23	1,867
Illinois	4 Mos. 40	63	1449	40	41	718	25	801	6	461	489		102	5	39	1	250	58	162	38	4,700
Indiana	4 Mos. 168	241	4732	221	115	2710	61	2644	27	1505	1858		430	6	171	3	823	324	707	183	16,900
Iowa	April 1		691	3	5	158	1	383		132	127		17		7		95	9	66	24	1,710
Kansas	4 Mos. 7		3203	19	10	736	4	1470		406	687		82		30	2	418	56	358	55	7,543
Kentucky	4 Mos. 6		185	3	1	49	1	92		46	72						43		41	2	535
Louisiana	4 Mos. 7	2	675	32	2	207	6	453		168	404		1		3		166	1	146	6	2,276
Maine	4 Mos. 33	9	1200	19	16	431	16	636	2	233	341		11	7	22		171	59	170	12	3,385
Maryland	4 Mos. 2		4953	83	112	1852	46	2327	3	817	1387		70	13	61		737	245	630	60	13,342
Massachusetts	April 2		822	3	5	261		401		170	217		5	2	8		99	14	83	2	2,095
Michigan	4 Mos. 2		2361	8	7	754	2	1081	1	408	676		11	2	23		320	34	333	13	6,046
Minnesota	April 4		374	6	5	154	2	219		139	119	12	8		6	1	77	3	80	5	1,210
Mississippi	4 Mos. 9		1392	17	13	502	6	703	3	408	382		25		15	2	286	56	305	18	4,180
Missouri	4 Mos. 13	26	1329	34	2	625	5	724	2	351	345		39		15	5	238	97	148	16	4,616
Montana	4 Mos. 60	102	4621	123	22	2208	27	2474	3	1161	1512		186		75	10	930	274	624	84	14,498
Nebraska	April 4		119	10	39	36		130		49	61		19	1	8		11	9	26	7	545
Nevada	4 Mos. 25	2	329	15	42	112		265		93	144		23	1	10	6	46	17	56	12	1,198
New Hampshire	April 4		349	1		82		151	1	73	72		11	1	2		41	7	27	1	610
New Jersey	4 Mos. 2		1556	10	4	380		639	1	266	296		54	1	10		174	27	147	6	3,373
New Mexico	April 4		180	18		59	3	99		41	83				4		48	2	67	2	608
New York	4 Mos. 4		667	63	1																



# Truck Specifications

## Showing New Models and Revisions Since Last Issue

The specifications of new truck models and revisions in current models noted below have been received from truck manufacturers since publication of the Commercial Car Journal Truck

Specifications Table in the June, 1949, issue. Readers are requested to make note of these changes. Publication of the complete Specifications Table will be resumed in the August issue.

### DATA SUPPLIED BY MANUFACTURERS AND TABULATED BY COMMERCIAL CAR JOURNAL

#### Brown

Brown Equipment Co., Charlotte, N. C., is now in production of three truck-tractor models, available for public offering. Condensed specifications are as follows:

	Model 6572	Model HB600T	Model NHB600T
Wheelbase	144	144	144
Gross Weight	33,000	33,000	33,000
Chassis Weight (with cab)	9,718	10,518	11,100
Engine	Con R6572	Cum HB600T	Cum NHB600T
Displacement	572	672	743
Horsepower	174.3	150	200
Transmission	Spi 6252B	Ful 56650	Ful 56920
Rear Axle	Tim R100	Tim R100	Tim 5200

Full specifications will appear in the August issue.

#### Chevrolet

Chassis weight of Model SL is 4120 lb. On models GP, GR and GT a four-speed transmission is available at extra cost.

New factory list prices, recently announced, are as follows:

Model	Price	Model	Price
GP	\$ 905	SVS	\$1450
GR	1000	SWS	1485
GT	1015	SPS	1805*
GS	1070	SRS	1840*
GU	1105	SSS	1875*
SJ	1130	SP	1805*
SK	1165	SR	1840*
SL	1310	SS	1875*
		SV	1450
		SW	1485
		SX	1530

\* Includes cab.

#### Federal

Two new diesel models are coming see page 106) but details are not yet available.

#### Ford

Length of main bearings on the 6-cyl engine has been increased to 5.0 in. and all 8-cyl engines to 5.2 in.

Several new longer wheelbase models have been added to the F-5, F-6, F-7 and F-8 series. Except for wheelbase and cab-to-rear-axle dimensions (shown below), and prices and chassis weights (not available) they are similar in all basic specifications to others in the corresponding series.

Model	Wheelbase	CA Dimension
F-5 Series		
9H6T-84 (6-cyl)	176	102.27
9R6T-84 (8-cyl)	176	102.27
F-6 Series		
9H6TH-84 (6-cyl)	176	102.27
9R6TH-84 (8-cyl)	176	102.27
F-7 Series		
9E7Q-84 (big 8)	147	73.06
9E8Q-84 (big 8)	178	104.06
F-8 Series		
9E7QH-84 (big 8)	147	73.06
9E8QH-84 (big 8)	178	104.06

Full specifications will appear in the August issue.

#### Kenworth

Models 548 and 552 are now equipped with Timken SFD 460 rear axle. Models 523, 524, 548, 825 and 829 have timken FE 900 front axle.

#### Marmion-Herrington

Two new heavy-duty four wheel drive models have been added, with condensed specifications as follows:

	Model MH-RC-4	Model MH-RH-4
Wheelbase	161	161
Gross Weight	28,000	33,000
Chassis Weight	10,550	11,980
Engine	Her RAC	Her RXLDH
Displacement	529	558
Horsepower	131 @ 2200	180 @ 2600
Transmission	Fuller	Fuller
Rear Axle	Own 1121	Own 1122
Front Axle	Own 121W	Own 122W

Full specifications will appear in the August issue.

#### Oshkosh

A new four-wheel-drive Model W-712 has been added with the following condensed specifications:

Wheelbase	150 to 205 in.
Gross Weight	34,000 lb
Chassis Weight	12,600 lb
Engine	Hercules RXLDH
Displacement	556 cu in.
Horsepower	190 @ 2600
Transmission	Fuller 5-A-650
Rear Axle	Own W-712
Front Axle	Own W-712

Full specifications will appear in the August issue.

#### Studebaker

Chassis list price of model 2R16 is \$1291, and model 2R17 is \$1592. Two-speed axles with 6.13 and 8.10 ratios are optional at extra cost on these models.

See June issue, page 91, for specifications of other models

## CCJ Newscast

Continued from Page 39

changed its name to the Campbell Chain Co. . . Binks Mfg. Co. of Chicago has passed the million man-hour mark without a disabling injury . . . and Timken-Detroit Axle Co. marked its 40th anniversary on May 27 . . . Meehanite Metal Corp. has completed arrangements with Zonith Industries, Inc. of Indianapolis to manufacture and sell Meehanite castings . . . Independent Pneumatic Tool Co. has opened new factory sales and service buildings in Chicago, New York, Pittsburgh and Toronto.

### 1949 Domestic Truck Factory Sales by Gross Vehicle Weight\*

	5,000 lb. and Less	5,001-10,000	10,001-14,000	14,001-18,000	18,001-24,000	24,001-30,000	Over 30,000	Total
January	31,918	25,697	10,537	15,085	4,047	2,708	1,290	91,282
February	32,799	25,543	10,504	13,708	2,855	1,839	1,292	88,540
March	39,769	28,082	12,029	14,599	2,364	1,854	1,428	99,925
April	40,568	25,068	9,578	11,771	1,926	1,590	1,307	91,808
Total	145,054	104,390	42,648	55,163	11,192	7,791	5,317	371,555

\*—Automobile Manufacturers Association.

### REO D-22 PRICES

New prices of the Reo D-22 Series (see page 91) range from \$3411.00 to \$3702.00, depending on wheelbase, brake, and other optional equipment.

### NEW CUMMINS NHRS-600

A new supercharged NHRS-600 Cummins Diesel Engine is now in production. It develops 300 hp at 2100 rpm, and makes a total of 66 Cummins models, ranging from 50 to 550 hp.

### ROBERTS P. PAGE DIES

Robert P. Page, president of the Autocar Co. from 1927 to 1948 chairman of its board since last January, died on June 18.

### 1949 Truck Trailer Production\*

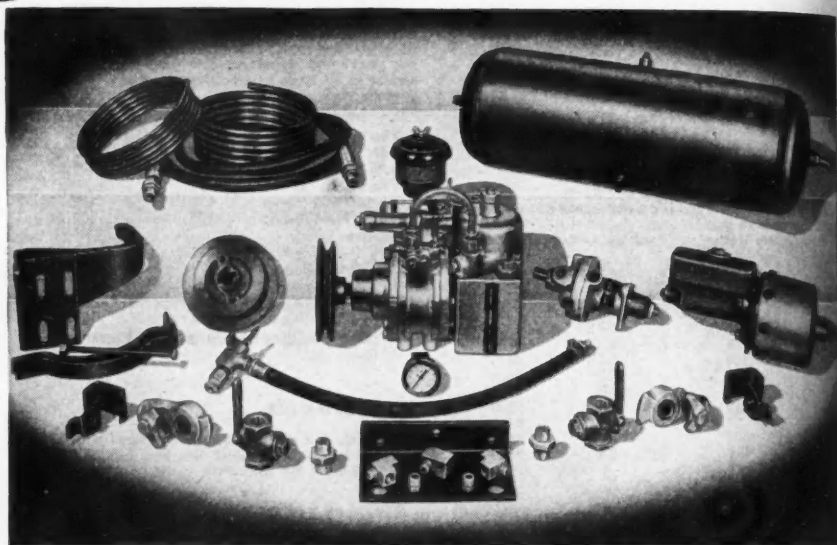
	April	Four Months
Vans:		
Insulated and refrigerated	142	684
Furniture	26	120
All other closed top	904	3,744
Open top	158	821
Total Vans	1,230	5,069
Platforms:		
With cattle and stake racks	39	246
With grain bodies	9	75
All other	517	2,007
Total Platforms	565	2,328
Tanks:		
Petroleum	166	685
All other		
Total Tanks	166	685
Pole and Logging:		
Single Axle	26	298
Tandem Axle	97	267
Total	123	565
Low-bed heavy haulers	137	464
Dump trailers	30	108
All other trailers	363	702
Total Complete Trailers	2,554	9,941
Trailer Chassis	192	502
Total Trailers and Chassis	2,746	10,443

\* Industry Division, Bureau of the Census.

# WAGNER AIR BRAKES

*Are Important*

in profitable  
trucking  
operations  
**INSTALL THEM  
ON EVERY VEHICLE  
IN YOUR FLEET**



Safety on the highway is of paramount importance to profitable trucking operation. Fleet owners and commercial car operators are conscious of the many benefits of reliable air brakes—not only from a safety angle, but from a profit angle as well. That's why thousands of operators have installed Wagner Air Brakes—the air brakes that are dependable—the air brakes that provide reliable safety and pay for themselves in a short time.

## *Available in* **COMPLETE KITS**

It is easy to install air brakes on trucks, tractors and buses with Wagner Air Brake Kits. They come to you complete—Each kit contains all parts, connections and brackets as well as simple, easy-to-follow installation instructions. You can convert the braking system of all types of heavy-duty vehicles to air with a minimum of time and effort.

And remember, only Wagner has the famous Rotary Air Compressor—the most reliable air compressor available. It is compact and mounts right under the hood, and can be either belt or direct-driven to give highest efficiency. Write today for complete information.

Ask For Your Copy of Bulletin KU-50B.

★ ★ ★ ★ ★ ★ ★ ★  
**Service Exchange Units Are Available at All Wagner Branches**

**Wagner Electric Corporation**

6470 PLYMOUTH AVENUE, SAINT LOUIS 14, MO., U. S. A.



LOCKHEED HYDRAULIC BRAKE PARTS and FLUID • M&L  
CoMoX BRAKE LINING • AIR BRAKES • TACHOGRAPHS  
ELECTRIC MOTORS • TRANSFORMERS • INDUSTRIAL BRAKES



# KENWORTH



USES

# SHULER AXLES



**THERE ARE NO BETTER AXLES, AT ANY PRICE!**

**SHULER AXLE COMPANY, Inc.**

**Louisville, Kentucky**

Since 1915, Manufacturers of: One-Piece Tubular and Square Trailer Axles, Front Axles, Machinery Trailer Axles, Machinery Front Axles, Front-Steer Trailing Axles, Heavy-Duty Brakes (Mechanical, Vacuum and Air), House Trailer Axles, Miscellaneous Forgings for Heavy-Duty Trucks and Trailers.

**DETROIT OFFICE: 8424 Woodward Ave.**

**EXPORT DIVISION: 38 Pearl St., New York**

**WEST COAST WAREHOUSE: 1280 Forty-Fifth St., Oakland**

**CHICAGO OFFICE: 845 Chicago Ave., Evanston**



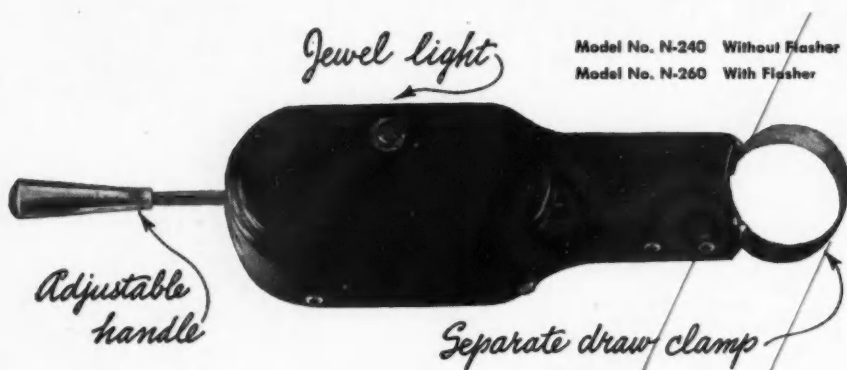


## INTRODUCING . . .

... HAROLD J. MEACHER as vice-president and treasurer of the Highway Trailer Co.

... J. W. ADELUNG as manager of the Mack-International Motor Truck Corp.'s Brooklyn Branch and W. A. BRADY as manager of the company's White Plains (N. Y.) Branch.

## For a Better Switch... Better Switch to ARROW



Check the features of the new Arrow Directional Signal Switch against those of any switch on the market, then switch to Arrow for safe, sure protection . . . for a better switch at a lower price.

**POSITIVE PROOF INDICATION.** One feature alone makes it worth the low cost. That's a tell-tale jewel light that tells you whether your signal lights are working—not just the switch. If one or more of your lights are out, or there is a break in the lamp circuit, the jewel light will indicate that the system is not functioning perfectly.

**FINGER-TIP CONTROL.** Adjustable handle can be moved in and out to provide finger-tip control regardless of the size of the steering wheel.

**EASE OF INSTALLATION.** Separate mounting bracket fits any size steering column merely by tightening a screw—a matter of seconds.

**BUILT-IN PROTECTION.** Built-in line fuse prevents short circuit caused by improper wiring from affecting other lights in your vehicle.

**DEPENDABILITY.** Tested for over 175,000 cycles.

**ATTRACTIVE, MODERN DESIGN.** Compact, good-looking.

The new Arrow switch is available for 6- or 12-volt systems, with standard or with stop-light-proof wiring-harness, with or without a flasher mounted in the switch case, and for a 2-light or 4-light hook-up. It can be used in combination with any Arrow Signal Lights or with any system now in use.

See the amazing new Arrow switch at your dealer's today.



**SAFETY AFTER DARK**

**ARROW SAFETY DEVICE COMPANY • MOUNT HOLLY, NEW JERSEY**

... The following newly assigned officers in the Truck Division of GMC Truck & Coach: R. C. WOODHOUSE, formerly GMC Regional Manager for the Southwest, now assistant sales manager of the Truck Division of Pontiac; R. E. HOLSAPLE, formerly zone manager for GMC on Charlotte, as Metropolitan Sales Manager; G. R. BLACKBURN takes over the Charlotte post.

... CLINTON A. MISSON as president and director of the Walter Motor Truck Co. and MAURICE WALTER as chairman of the board, continuing as vice president.

... K. O. NORQUIST as Minneapolis truck branch manager for International Harvester Co.

... D. C. BALL as chairman and John A. Carter as president of Oakite Products, Inc.

... RAYMOND Z. OSWALD as president of Monmouth Products, succeeding the late Ernest L. Davis.

... FRED C. SCHULZE, recently promoted from assistant sales manager to sales manager for the Waukesha Motor Co.

... ROBERT M. PALMER as truck and equipment sales manager of Willys-Overland Motors and ROBERT MONTGOMERY as assistant to the first vice-president.

... M. O. STOCKLAND, JR. as director of sales for the Four Wheel Drive Auto Co., succeeding R. L. KOEHLER, resigned.

... CHARLES PINGRY as Dallas district sales engineer for Chain Belt Co.

... W. H. FARMER as Ford truck and fleet sales promotion manager. He was formerly truck and fleet sales manager in the Memphis district.



... JOHN H. SCHAEFER as Ethyl Corp. president of the Industrial Research Institute.

... R. B. HAYNES as director of manufacturing for all division of the Dana Corp. and JOHN H. JONES as plant manager of the Toledo plant of the Spicer Mfg. Division.

... JOHN F. DUCEY, JR., and SAM R. WATKINS of the Brake Shoe & Casting Division of American Brake Shoe Co. as district sales managers of the New York and Cleveland sales offices, respectively.

... W. C. KINNEY as sales promotion manager for the Standard Electric, Inc., manufacturers of "Reliable" batteries.

... WILLIAM H. CAMPBELL as manager of the Albany district of the Replacement Tire Sales Division of the B. F. Goodrich Co. and LEWIS B. McRAE as manager of the Cincinnati district succeeding Mark O. Ward deceased.

(TURN TO PAGE 105, PLEASE)

## Introducing . . .

Continued from Page 102

... HARLEY A. GARDNER as treasurer of Willard Storage Battery Co.

... W. B. ROSE and W. F. KIMBERLY as managers of Packard Electric Division's newly-created Eastern and Southern regions, respectively. Mr. Rose's headquarters will be in New York, Mr. Kimberly's in Atlanta.

... J. A. DOYLE as director of Sun Electric Corp.'s new Government and Fleet Division.

... BERT P. BATES, formerly of Highway Trailer, who now will handle national fleet accounts and distributors for Andrews Body Co. (aluminum trailers), St. Louis.

... The following newly-appointed district sales managers for K-D Lamp Co.: FRED F. DENNE, JR., Syracuse, N. Y.; JOHN CONNOR, JR., Richmond; HARVEY J. EGLEY, Pittsburgh, and CARL E. WALDEN, Charlotte, N. C.



... BRYAN E. HOUSE as general manager of the Brake Division of the Timken-Detroit Axle Co.

... WILLIAM F. PENROSE is the divisions new sales manager.

... ROBERT L. BAKER as manager of sales planning of the Replacement Tire Sales division of the B. F. Goodrich Co.

... C. O. WANVIC as chairman of the board and WYETH ALLEN as president of Globe-Union, Inc.

... GEORGE W. STAPLES as Boston district manager for the Seiberling Rubber Co., Ohio. RALPH K. SUPER remains as chief engineer.

... HERMAN H. HOBELMANN as factory representative for The Black Mfg. Co. in the Northern California area.

... JOHN E. CARROLL as general sales manager of the American Hoist & Derrick Co.

... J. F. ROCHE as the chairman of the board, Binks Mfg. Co. He is succeeded in the presidency by his son, BURKE B. ROCHE.

... H. C. CORSAUT and WILLIAM E. STILL as assistant district managers of Pittsburgh and San Francisco respectively, Goodyear Tire & Rubber Co.

... WILLIAM E. WOLFE as manager of special sales for Thermoid Co.

... CURTIS C. GARY as assistant to the president of the Brake Shoe & Casting Division of the American Brake Shoe Co.

... D. J. TIBBLE as assistant manager of Roadway Mounting & Equipment Co., Inc. He was formerly associated with Bridgeways, Inc.

... SAMUEL D. STANTON as general manager of the New York City Department of the Railway Express Agency.

... FRED T. CUSHING as Eastern sales manager of the ACF—Brill Motors Co.

... E. E. SIEGRIST as field sales manager of the Timken-Detroit Axle Co.

... BLAIR F. SCANLON as regional used car manager for the Northeast Region, Ford Motor Co.

... C. DEWEY BOOKOUT as manufacturing division manager for the Perfect Circle Corp.

... The following new officers of the Detroit Automotive Produces Corp.: S. F. BAKER, president and general manager; V. L. ANDERSON, vice president and treasurer; CHARLES E. LEWIS, secretary.

... ROGER W. BATCHELDER as vice president in charge of sales of the National Bearing Division of American Brake Shoe Co.

... PAUL M. RUEF as N. Y. regional manager of the Dodge Division, Chrysler Corp., succeeding J. W. McLaughlin.

WHY REBUILD AND  
RE-UPHOLSTER SEAT CUSHIONS?

IT'S THRIFTY

TO BUY

McInerney

TRAVEL COMFORT

REPLACEMENT

CUSHIONS



According to a nationwide survey\*, your seat cushions last about two and one-half years. Then, perhaps, you have them rebuilt. If you're like most fleet owners, you and your drivers usually find rebuilt seats an unsatisfactory make-shift.

Now, for the first time, you can get brand new, expertly built Travel Comfort Replacement Cushions (seats and backs) for the cost of rebuilding your old ones — Cushions which are far superior in quality, comfort, service and satisfaction.

Whether you operate one truck or a hundred... whether they're all alike or each a different model... McInerney will provide replacement cushions designed to fit your particular vehicle, made with a spring construction which has been scientifically developed and engineered specifically for truck use and expertly upholstered and tailored in your choice of upholstery materials and coverings.

Travel Comfort Replacement Cushions give you a better, longer-lived seating unit which will eliminate road shock, reduce riding fatigue, and provide greater comfort for your drivers.



WRITE FOR complete information about Travel Comfort REPLACEMENT Cushions... the easy, economical and wholly satisfactory way to solve your seating problems.

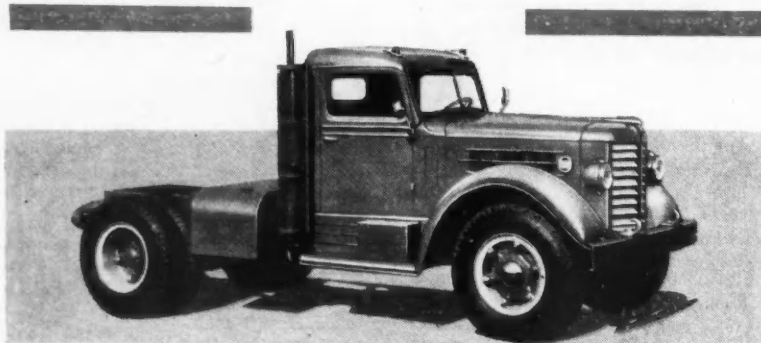
\*5000 fleet owners and operators surveyed by Commercial Car Journal.

TRAVEL COMFORT CUSHIONS

McInerney

SPRING & WIRE COMPANY

657 GODFREY AVENUE, S. W. • GRAND RAPIDS 2, MICHIGAN



Federal Model D-45 diesel tractor

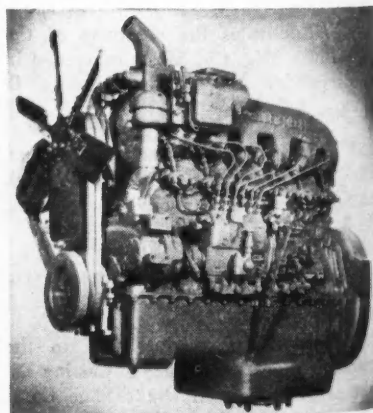
## FEDERAL Offers Two Diesel Series

▼ TWO NEW high-speed heavy-duty diesel series trucks comprising five models in the medium price field have been introduced by the Federal Motor Truck Co. All will be powered with the Federal-Hercules Model DWXLD diesel engine having a displacement of 426 cu. in.

The engine develops 142 hp at 2600 rpm and a gross torque of 332 lb-ft at 1700 rpm. Its high torque characteristics give excellent grade ability with minimum gear shifting and its top operating speed of 2600 rpm corresponds with gasoline engines of similar displacement. It weighs only 485 lb more than the gasoline engines now standard for comparable Federal models.

Specifically the new units consist of three models in the conventional D-45 series and two models in the D-645 six-wheeler series. Their specifications generally are similar to corresponding 45M and 645M gasoline models having gross vehicle weights of 26,000 and 38,000 lb respectively and proportionately higher gross train weights. Optional rear axles on the four-wheelers include single and 2-speed double-reduction axles, and on the six-wheelers tandem double-reduction or worm drive. Auxiliary transmissions are also available.

*Hercules high-speed, high-torque DWXLD powers all new Federal diesels*



COMMERCIAL CAR JOURNAL, July, 1949



Pull a set of sleeves  
in only **15** minutes!

### with the *NEW* Hein-Werner HP-33 HYDRAULIC PULLER FOR CYLINDER SLEEVES

Pulling and inserting cylinder sleeves need no longer be a tedious, time-taking job. The new H-W Puller enables a mechanic to pull the average set of sleeves in as little as fifteen minutes and replace them in the same amount of time. It eliminates the hazardous methods of driving sleeves in and out which often result in cracked blocks or fractured sleeves.

This small portable puller can be moved about and positioned with ease, and can be used without removing engine block from chassis. It is specially designed for trucks but can be used on all sleeved engines. Standard model pulls and inserts sleeves up to 4 3/8" outside diameter, with pulling jaws for special size sleeves available.

**AVAILABLE FOR  
IMMEDIATE DELIVERY**

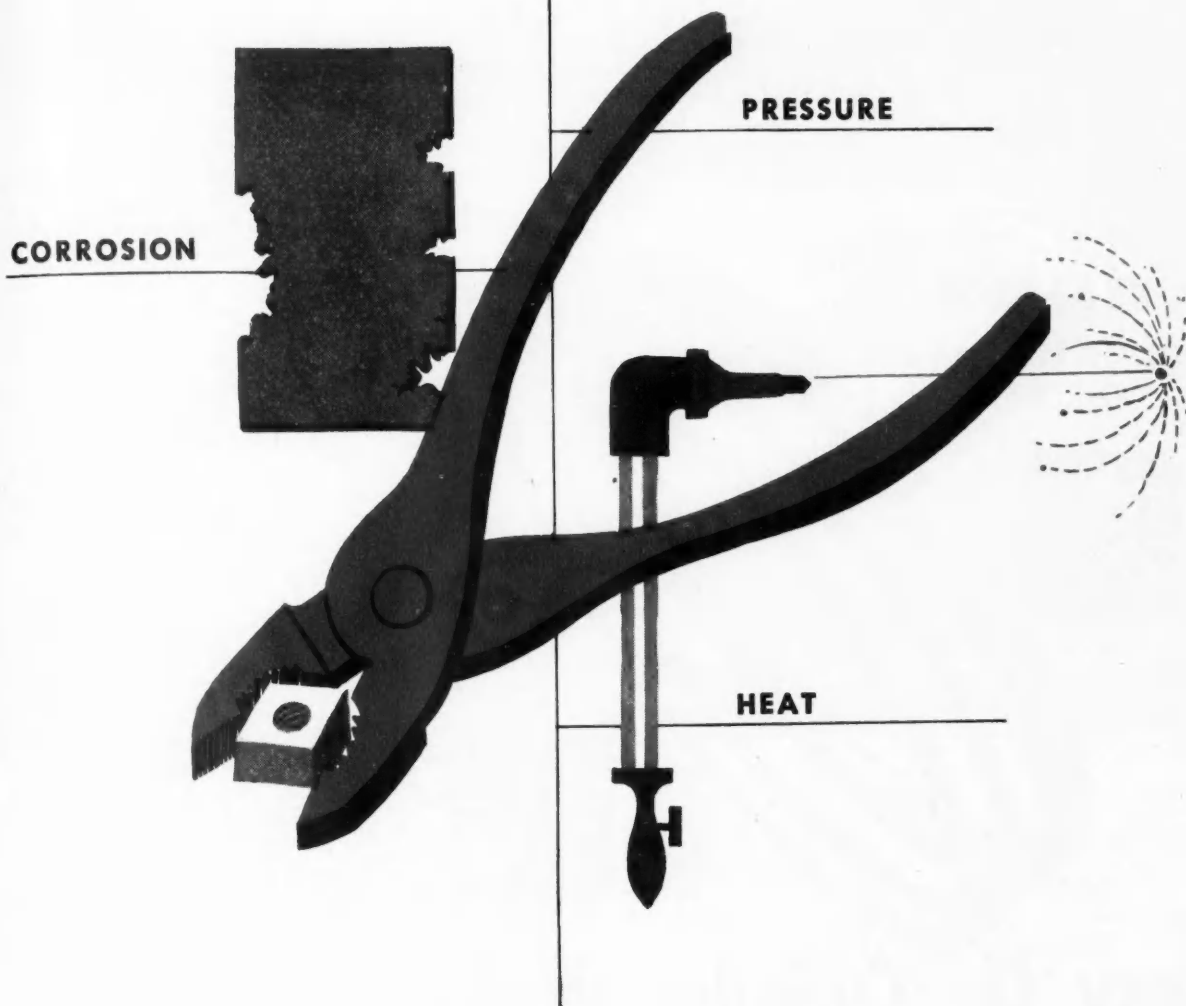
**HEIN-WERNER CORPORATION  
WAUKESHA, WIS.**

You can save time and money on every sleeve job for your fleet with the extremely simple and effective new H-W Sleeve Puller. Get complete details from your Hein-Werner distributor, or write us.

**Hein-Werner**  
HYDRAULIC JACKS



# Stabilized to resist —

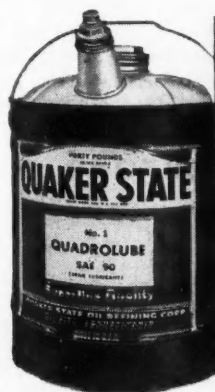


**Why send a boy to do man's work, or expect ordinary grease to do the job of Quaker State Quadrolube?**

This superior gear lubricant is *stabilized* to neutralize corrosion and rust ... to resist the tremendous tooth-on-tooth pressure of quick starts, hard pulls and heavy loads ... to keep its body under high summer operating temperatures.

Quaker State Quadrolube is refined by the world's most modern techniques from the world's finest base—100% pure Pennsylvania grade crude oil. In the correct weight for every gear of

every truck, bus or vehicle, it's life insurance for new equipment, life extension for old.



**STABILIZED**  
**QUAKER STATE**  
**QUADROLUBE**  
**AND SUPER QUADROLUBE\***

\*Specially compounded for the lubrication of hypoid gears

**QUAKER STATE OIL REFINING CORPORATION • OIL CITY, PENNSYLVANIA**

# Merchandising Safety

Continued from Page 75

ances for the lack of skill or improper attitude on the part of the other fellow. Furthermore, the driver does not allow the hazards of weather and road conditions or the action of pedestrians or other drivers to involve him in an accident. Such a driver is continually on the alert and recognizes an accident-producing situation far enough in ad-

vance to apply the necessary preventive action.

Many of our drivers have driven 500,000 miles and more without an accident. Such a record cannot be ascribed to good luck alone. Rather this indicates that most accidents can be prevented if drivers will maintain the proper attitude and exercise caution.

**BURD**

**"Super Hi-Speed"**

**OIL RING**



Greater flexibility of wide-channel cast iron ring assures wall contact with minimum wear.

Ventilated expander guarantees conformity in worn, out-of-round cylinders.

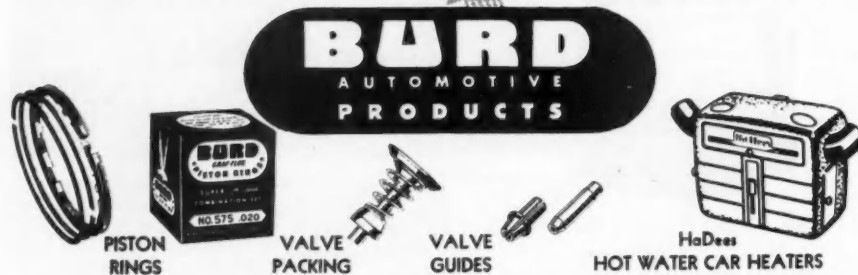
Both steel segments go below cast ring and its expander for added wall wiping.

## Easy On Cylinder Walls

**The Problem:** How to get better oil control with minimum cylinder wall wear and low overhaul costs.

**The Answer:** Burd "Super Hi-Speed" Oil Rings. First, because the high flexibility and soft action of the cast iron ring assures perfect conformity with badly worn walls. Second, because the steel segments, installed *below* the cast ring, provide a positive wiping action *without excessive wear*. Burd "Super Hi-Speed" Oil Rings are **ENGINEERED FOR RESULTS...** are available in a complete range of sizes and in combination sets for every type of engine. Ask your Burd jobber.

**BURD PISTON RING CO. • ROCKFORD, ILL.**



## Merchandise Awards

We have found that a davenport or a chair for the home proves a stronger incentive than cash. This is particularly true when the offer is made in such a way that the wife and children know about it in their homes. When we have offered money awards in the past, the driver was usually the only one who had an interest in earning the award. When the cash was given out, it seemed to disappear without making any impression upon the family or changing its status.

As an incentive to our unmarried drivers, fishing tackle and hunting equipment and sporting goods are also described in our award book which is the "Sights on Safety Campaign Prizes," published by the American Trucking Associations. Accompanying it is a Prize Point List folder which prescribes the number of points required for each award.

Just a few of the interesting prizes listed in the catalog, with the points required to win them are as follows: Chair, 5110 points; Bed, 5310 points; Badminton set, 3930 points; Table Lamp, 3780 points; Pen, 710 points; Ice Cream Freezer, 3326 points; Ladies' Skates, 3680 points; Schick Shaver, 1950 points; Door Chime, 3994 points; Wading Pool, 3976 points; Shotgun, 3848 points; Ladies' Watch, 3612; and a Crosley Radio, 4472 points.

The goods are supplied by the Cappel-MacDonald Co., Cappel Bldg., Dayton 1, Ohio. The drivers are furnished with Prize Orders printed in duplicate which may be used at any time after sufficient points are earned to "pay" for the merchandise desired. The form is arranged in such a way that a prize winner may make his own choice of merchandise in detail with great ease. Each month each driver is given a certificate printed on banknote paper which indicates how many points he has coming to him (both forms are reproduced on page 74).

The third and final feature of our incentive plan, the element of team play, is based on the time-proven philosophy that team competition pays off. As will be noted in the rules there are a number of awards for individual achievement and a number of additional awards for team achievement. When a driver has only his own points at stake, he might be tempted to take a chance and to risk the loss of some or all his point credits. But when he knows that he will bring down the standing of his whole team as well, he is much less likely to take that chance. He has to face his teammates in the locker room.

**END**

Please resume your reading on P. 76

# Dead Engines

better no parsnips



## THE AC FUEL PUMP SYSTEM HELPS KEEP YOU OUT OF TROUBLE

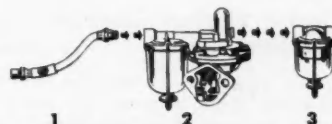
Whether you haul goods or people, you lose money when engines go dead.

That's why practically all operators of gas-powered trucks and buses rely on AC Fuel Pumps for an unfailing supply of gas to the carburetor.

No other fuel pump has such an amazing record of reliability.

Naturally, it's true economy to replace and to inspect the pumps at regular intervals for pressure and flow.

And for complete 3-way fuel protection, use the other two units of the AC Fuel Pump System . . . the AC Flexible Gasoline Line and the AC Gasoline Strainer.



1. Leaky fuel lines are not only dangerous, but cause faulty operation of the Fuel Pump. Install a new AC Flexible Gasoline Line when you replace your Fuel Pump. 2. AC Fuel Pump, Heart of the Fuel System. 3. AC Gasoline Strainer keeps dirt and water out of carburetor, promotes easy starting and protects delicate carburetor parts. Your fuel system needs one.

**AC**  
**FUEL PUMP**  
SYSTEM

AC SPARK PLUG DIVISION • GENERAL MOTORS CORPORATION

COMMERCIAL CAR JOURNAL, July, 1949





## DRIVERS WRITE

While making patrol, Cookeville Police Officer examines courtesy card (see below) on truck windshield to see what time driver wishes to be awakened



FOR BETTER SEEING



**KD 113**

### GMC-CHEVROLET TRUCK MIRROR

Typically K-D in sturdiness . . . with curved bracket to fit late model Chevrolet and GMC trucks . . . locked in position by friction tension . . . yields only under heavy impact or pressure. 6" KD 104 Mirror Head with protecting rubber guard. Arm extension . . . 15" to 24". Baked black enamel finish.

#### KD A541 Armored Clearance Lite.



Brass or steel base. Single unit assembly popular with mechanics. Tough casting protects bulb and lens.

#### KD 333 Stimsonite Triflex Reflector.



Miracle of light reflection. Appears like lighted tail lamp at distances of 500 to 700 feet.



### FENDER MIRROR KD 110

Swivel action. Fits any fender crown. Reinforced black enameled outer tube . . . cadmium-plated inner sleeve . . . extension 10½" to 14½". KD 107 Mirror Head 5½". Diminishing glass for wider angle of vision.



#### KD C891 De Luxe Junior Tag Lite.

Glass Sealed Beam 4½" bulb. Amber or clear. Brass body. Chrome finish.

#### KD 254 Jumbo Stop Lite.

Stainless Steel Door. Black enamel finish. 7" lens with refracted letters. Red or Amber. Flush or bracket mounting. 32 C. P. bulb.



#### KD 539 Clearance Lite.

Flat surface mounting. Aluminum or Chromium Finish. Amber, Clear, Green or Red Lens. 3½" diameter. 1½" deep.

## TRUCK DRIVERS COURTESY CARD

Welcome to Cookeville!

"The Hub of the Upper Cumberland"

Home of Tennessee Tech

NOTED FOR COUNTRY HAM,  
FRIED CHICKEN, SORGHUM  
MOLASSES AND HOT BISCUITS

If you want to sleep just park on the Public Square or on the side of street.

Write below the time you want to be called and police will wake you:

Courtesy Police Department,  
Tel. 106 Cookeville, Tenn.  
COME BACK AGAIN! (OVER)

Courtesy card is available to all truck drivers. It boosts town's famous receipts at the same time extending special services to the drivers

WHEN A TRUCK DRIVER writes a ticket for the police, it's news. That is, it's news almost everywhere but in Cookeville, an enterprising little city in Eastern Tennessee that is blessed with an intelligent and understanding police chief, Hubert Crawford. We first ran across this story in the "Dodge Job Rater," a publication put out by Dodge for truck users, and think it should be passed on in the hope that the idea may prove contagious.

Cookeville lies on Route U. S. 70 N, a main East-West route for large hauling units. It is a long drag between terminals, and truck drivers lay over and sleep along the way. They used to stop at various places along the route, but they now converge on Cookeville for the night, because it is

# OWN PARKING TICKETS

*Promptly at appointed hour, Officer awakens sleeping driver. Protection and courtesy offered truck drivers has brought goodwill and business to town*



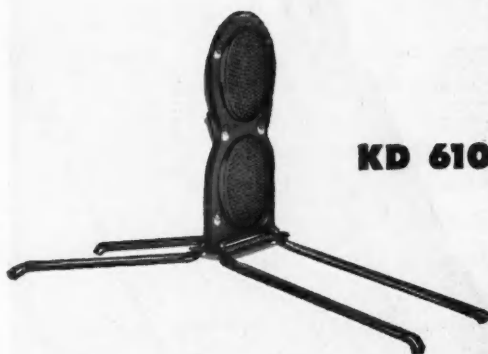
one place that has gone all out to make them welcome. When Chief Crawford took office about a year and a half ago, he started a program of courtesy and cooperation with the truckers passing through the town, and is now high man on the totem pole with hundreds of them.

Basically, his approach is simple. With the cooperation of the town officials, he makes designated areas available for parking, and then provides all-night police protection for the drivers and their cargoes. An extra touch is a special call service. That is where the ticket comes in. Provided by the city, the tickets are supplied to the drivers who indicate on them the time they want to be awakened and then hand them to one of the police officers on duty or hang it on the truck. At the appointed time, a patrol car rolls up and the police rouse the driver who has been sleeping in his cab. Incidentally, the ticket extolls the ham, fried chicken, molasses and hot biscuits for which Cookeville is noted.

Two particular areas are set aside for overnight truck parking, a large "Y" intersection at the edge of town, and the inner lane of the public square in the center of town. In addition, if these areas are full, trucks may park on side streets.

Throughout the night, the patrol cars makes the rounds, with police keeping a watchful eye on both drivers and their trucks. Thus, truckers can sleep with windows open on warm nights without fear of being "rolled" or hijacked.

And does the system pay off for Cookeville? Well, Chief Crawford reported that since the system went into effect, he has not had a single infraction of traffic rules by truck drivers. Also, it is a good promotion for the city, since drivers spend a good deal of money there.



**KD 610**

*This new K-D*

## REFLECTOR FLARE SET

Two 3" genuine Stimsonite No. 12 plastic reflectors . . . A miracle of light reflection . . . Wide range visibility . . . Exceeds ICC and SAE specifications. Heavy steel legs that grip pavement. Built-in holders for flag staff. Packed in box to keep flares and flags clean. Danger red baked enamel finish on flare frame and box.

- KD 610 Single Flare
- KD 610-2 Two Flares in Box
- KD 610-2F Two Flares-Two Flags in Box
- KD 610-3 Three Flares in Box
- KD 610-3F Three Flares-Three Flags in Box

## KD 910 Sealed Beam Headlite.

Horizontal or vertical mounting. Stainless steel door. Heavy Duty unit. 6 or 12 volt. With or without parking lite.



## KD 204 Stop and Rear Lite.

Triflex Reflecting Lens. Chrome door or economy black door. Universal mounting.



## KD 205 Stop and Rear Lite.

Triflex Reflecting Lens. Chrome door or economy black door. Attached license plate bracket.



## KD C890 De Luxe Fog Lite.

3 1/2" Sealed Beam bulb. Adjustable head. Gravel shield or bumper bar mounting. Clear or amber. Chrome plated.

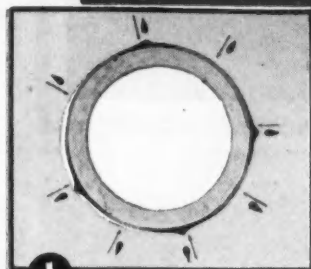


# K-D LAMP COMPANY

1910 ELM STREET • CINCINNATI 10, OHIO

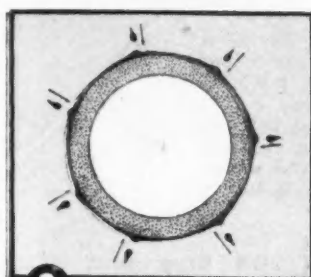
*You've heard that it's better  
now you can see*

# THE INSIDE



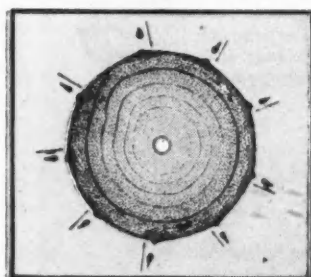
1

Surface!

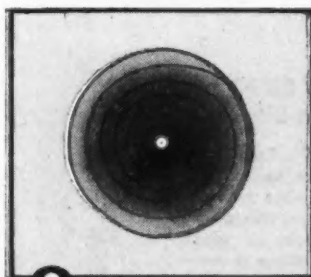


2

Depth!

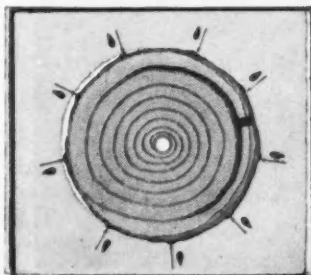


Multiple Filtration



3

Progressive!



Channel-Proof!



Walker Laminar construction is fully covered by U.S. Patent No. 2427733

## Here's How Walker's Patented *Laminar* Construction Works:

**1 Surface Filtration**—When oil enters the Walker cartridge, it immediately encounters double-wrapped wood cellulose dispersion strips . . . which not only provide definite surface type filtration but disperse the oil over the entire surface of the filtering medium.

**2 Depth Filtration**—After passing through the dispersion strips, the oil is next subjected to depth filtration through the basic filtering bed of pure wood cellulose fibres—the density of which is scientifically controlled for a proper balance between "flow" and "particle retention."

**Multiple Filtration**—Walker's patented Laminar construction is more than just one layer. As the continuous strip of filtering material is wound around and around the center tube, it forms many successive layers of both dispersion

strips and basic filtering bed . . . a multiple filtration of both surface and depth!

**3 Progressive Filtration**—Even this combination is not yet the full story. As each successive layer is wound around the center tube, compression forces the pattern in the filtering bed to become finer, more compact from outside to center . . . selectively removing smaller and smaller particles of micronic size.

**Channel-Proof**—Here's still another plus! Because of its basic Laminar design, every Walker cartridge is absolutely channel-proof. There are no "low resistance" spots . . . no natural channels through which the oil can pass unfiltered. Should an accidental break occur in any single layer, the additional layers will prevent any channeling.



# THE STORY OF THE ONLY FILTER THAT CLEANS OIL 3 WAYS

Exclusive Filtering Material and Patented *Laminar* Construction  
Combine the Three Basic Essentials of Effective Oil Filtration

• The superior performance of Walker Oil Filter Cartridges begins with an entirely new, chemically pure, physically uniform filtering material—wood cellulose fibre.

This material was selected after years of research because of its remarkable affinity for dirt and crankcase moisture—and because its density could be accurately controlled to permit the proper balance between “flow” and “particle retention.”

The primary filtering matrix of a Walker cartridge is a bed of pure wood cellulose fibres “air laid” by a secret process onto a continuous thin wood cellulose fibre sheet known as the dispersion strip. The dispersion strip is double-wrapped across the top forming a filtering bed of uniform density and structure.

A pre-determined length of this material is then spirally wound around the center tube forming many alternate and multiple layers of the primary filtering bed and intermediate dispersion strips. From this patented construction comes the new name in oil filtration—*Laminar*—meaning laminated, or *in layers*.

This new material, for the first time, made possible a new principle of filtration—*three-dimension filtration*—and an oil filter cartridge of uniform, predictable performance.

## Guarantee

Walker Oil Filters with *Laminar* construction are guaranteed against channeling, by-passing or migration of the filtering material.

WALKER MANUFACTURING COMPANY OF WISCONSIN • RACINE, WISCONSIN

Also makers of Walker Silencers, Jacks and Electric Lifts

"AMERICA'S FINEST OIL FILTER"

# WALKER OIL FILTERS

WITH PATENTED *Laminar*\* CONSTRUCTION

TRADEMARK



# Trailer Tricks Cut Costs

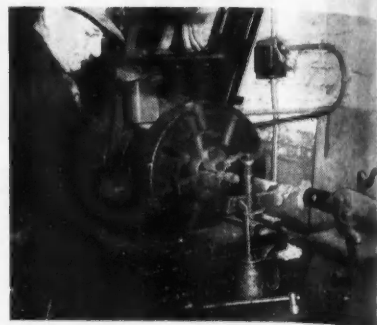
Continued from Page 71

of the old hole. Also, in the case of larger diameters, this method results in the waste of a great deal of welding metal.

The most successful method is to set the piece up in the lathe and bore out the hole with a boring tool. A competent machinist can do this and relocate the hole accurately and deliver

a job that is a beauty to behold but the setup time often rocks the accounting department back on its heels and the cost defeats the purpose.

Watson's trailer shop does it on a drill press (Fig. 3). A jig was made to hold these bellcranks and in the bottom of the jig is a permanently and accurately located pilot hole. The jig



**FIG. 6** Worn brake cams are built up with bronze, then turned on lathe

and the bellcrank are clamped on the work table of a heavy-duty machine shop drill press. To get better table support a hydraulic jack is provided to make sure the work table is level.

The cutter is a simple fly cutter, or a proper size and type of milling cutter for a milling machine can be used. The shank of the cutter goes in the chuck of the drill press and the pilot shaft rotates in the precisely located hole in the jig. Any new metal in the hole is then cut away as the rotating cutter is fed downward, and the finished hole is in exact alignment with the pilot base.

One man can finish up these bellcranks after the holes have been built up almost as fast as he can push the revolving cutter through the hole. Each hole in each piece will be precisely and identically located.

## Shop Details

**T**HE Watson Bros. trailer shop is 132 ft square. The arrangement of the machinery was worked out with checkers representing each piece of equipment and the end result is that 14 trailers can be handled in the shop at one time.

Twenty-eight men are employed in the shop and the equipment consists of one 16-in. lathe; four electric welding machines; four acetylene welding outfits; a 36-in. bandsaw; a 16-in. joiner; a 12-in. table saw, and a 12-ft bending brake.

Watson Bros. rebuild all their own trailers which will number not much less than a thousand for the system.

## Straightening Channel Iron

**T**RAILERS often get banged up on the sides and the channel iron around the bottom of the trailer is ordinarily one of the most difficult pieces to restore when crushed.

Mr. DeHart has developed a table and jacking arrangement that restores this channel to original shape (see Fig. 1). It consists of a steel table with a flat top which may be raised and

(TURN TO PAGE 118, PLEASE)

# MOLD-BLOK

BRAKE LINING

RAILROAD TYPE  
BRAKE SHOE  
AGAINST RIM OF  
WHEEL HAS BEEN  
USED SINCE  
AROUND 1769

- NON SQUEAL
- LOWER COST PER MILE TO OPERATE
- UNIFORM CO-EFFICIENT OF FRICTION
- NON-SCORING OF DRUMS

## MOLDED MATERIALS DIVISION

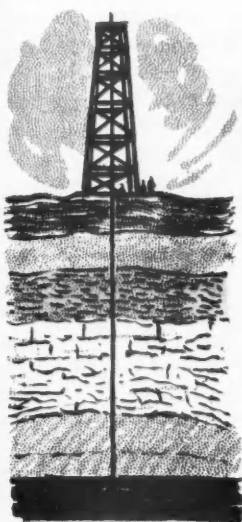
OF

### CARLISLE CORPORATION

RIDGWAY, PA.

# NATURE'S BEST IS TOUGH TO BEAT

THE HUMMING BIRD'S WING ACTION GIVES IT THE MANEUVERABILITY OF A HELICOPTER, THE RELATIVE SPEED OF A JET, AND IT CAN FLY PROPORTIONATELY GREATER DISTANCES THAN EITHER. AERONAUTICAL ENGINEERS HAVE YET TO PRODUCE ANYTHING TO SURPASS NATURE'S MOST VERSATILE WINGED ANIMALS.



AND  
**NATURE'S  
TOUGHEST  
CRUDE MAKES  
VEEDOL  
90 H.D.  
UNSURPASSABLE**

VEEDOL 90 H.D. is refined from nature's toughest crude oil — the magnificent crude found only in the Bradford, Pa., area. Scientific refining can improve any crude, but *nature's toughest STAYS the toughest, and nature's toughest STANDS the toughest beating under brutal, heavy-duty conditions.*

Naturally tougher VEEDOL 90 H.D. is naturally more resistant to heat and wear. For that reason, VEEDOL 90 H.D. means greater mileage between overhauls, thanks to its famous "film of protection."



**FEDERAL  
TIRES**

"GOOD FOR A  
LONG SAFE RIDE"



**TIDE WATER  
ASSOCIATED  
OIL COMPANY**

**NATURE PLUS! MAN-MADE ADDITIVES  
WORK MIRACLES IN VEEDOL 90 H.D.!**

VEEDOL 90 H.D. is a compound of scientifically-selected additives, blended perfectly in naturally-stable Bradford, Pennsylvania, oil, to reduce sludge and gum formation, protect bearings from corrosion, minimize lacquering of pistons and valve stems... all with full-throttle operation.

**100% BRADFORD, PENNSYLVANIA**

**VEEDOL**

**90 H.D. Motor Oil... Cleans as you Drive**

17 Battery Place, New York 4, N. Y. • Thompson Building, Tulsa 2, Oklahoma • 79 New Montgomery Street, San Francisco 20, Calif.



## Trailer Tricks

Continued from Page 116

lowered with a crank and screw. This table is the support for a heavy steel member, one end of which is a steel shoe or anvil that fits into the inside groove of the channel iron. A short piece designed to fit over the channel and act as the female die is then placed in position opposite the shoe. Pressure is obtained by using a horizontally-positioned hydraulic jack be-

tween the female die and a backstop at the other end of the steel member. The screw lift on the table makes it possible to position this equipment exactly without lifting and to hold it there until the lateral changes are made with the jack.

In actual use the equipment is placed on a bad kink on a trailer and the male die or shoe and the female die follow the bend as the table is rolled on the floor and a series of short bends brings the channel back to its true line without distorting the channel iron.



FIG. 7 Spring U-bolts are retreaded in this machine which uses auto transmission to get proper speeds

EXCLUSIVE, PATENTED FEATURES MAKE

# KOLD-HOLD

## TRUCK PLATES

THE MOST

*dependable known*

### NO CASE OF OPERATIONAL FAILURE EVER REPORTED

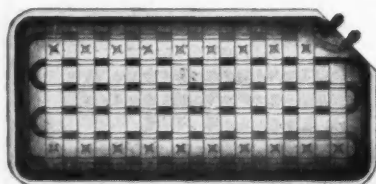
When you buy Kold-Hold Refrigeration plates for your truck, you can count on a lifetime of low cost, highly efficient refrigeration. For, with over one-half million Kold-Hold plates in use today, there has never been a case of operational failure reported. Trucks equipped with Kold-Hold Plates have been subjected to the most severe operating conditions possible, in all types of trucks. And never yet have they failed to provide the refrigeration needed.

### "PERIMETER FREEZING" ELIMINATES OPERATIONAL FAILURES

The extra long life of Kold-Hold Plates is due to exclusive design features which eliminate the operational failures found in conventional plate design. In Kold-Hold Plates, the refrigerant passes through tubing along the outer edges of the plate first . . . before it reaches the center. (See drawings below.) As a result the outer edges freeze first and the strain caused by the expansion of the eutectic is placed on the strong center part of the plate.

**DUE TO THIS PATENTED METHOD OF CONSTRUCTION WHICH RESULTS IN THE PERIMETER FREEZING FIRST, KOLD-HOLD TRUCK PLATES CANNOT SPOIL YOUR TRUCK LOAD THROUGH MECHANICAL FAILURE.**

There are other patented features which help make the Kold-Hold Truck Plate the most dependable on the market today. The streamlined design and rounded corners provide extra strength where it's needed most. Ice cannot cake over the end.



Sketch at left shows how tubing carries refrigerant around outer edges and freezes first. . . . End view shows how this takes strain off the edges and expansion occurs in the center. In conventional designs the center freezes first and places excessive strain on the edges.

Send for your free copy of complete Catalog today.



# KOLD-HOLD

Jobbers in Principal Cities

KOLD-HOLD MANUFACTURING CO.

PROCESSING protects every step of the way

STORAGE

TRANSPORTATION

620 E. Hazel St., Lansing 4, Michigan

### Tarp Tie Down

**A**MONG the hundreds of trailers owned by Watson Bros. are a number of open-top trailers used for hauling machinery and hard goods. It is common practice to cover these trailers with a canvas tarpaulin which is tied down all around. Often the tarps blow and flap excessively and they have to be untied in unloading operations.

The Watson trailer shop has devised an ideal answer to the problem by having iron rings sewed into the tarp along each edge on the long side. A steel rod the length of the trailer is slipped through these rings on each side (see Fig. 2). The rod in turn has rings on each end which slide on short rods mounted vertically on the trailer. These provide a means for the long horizontal rod to work up and down vertically with the tarp.

When the tarp is to be removed it is not necessary to untie the straps. The tarp can be pushed either way along the two rods and still remain secure from blowing.

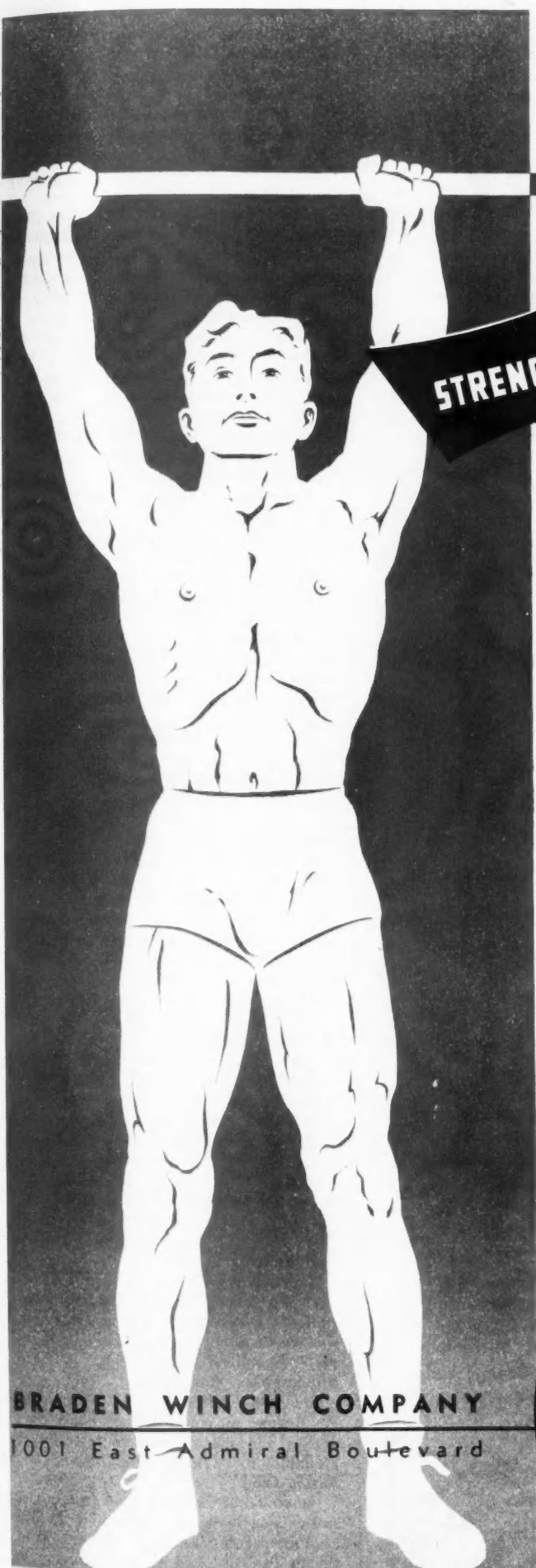
### Dual Trailer Brakes

**A**NOTHER important project is the installation of dual brake actuating equipment on all Watson trailers. Some of the tractors are equipped with vacuum brakes; others with air brakes. But the dual system permits any tractor to be used on any trailer. The system takes advantage of the fact that a vacuum cylinder pulls while an air cylinder pushes (see Fig. 4). The end of each rod is slotted and the double actuating lever which is pivoted near the trailer axle has a pin in each end which runs in the slots. With the brakes off, the pin on the vacuum side is in the rear end of the slot so that the slightest movement or pull of the vacuum piston will actuate the brakes.

On the other hand, if the tractor to be hooked up has an air brake system, the slightest movement or push of the piston will actuate the brakes.

END

Please resume your reading on P. 72

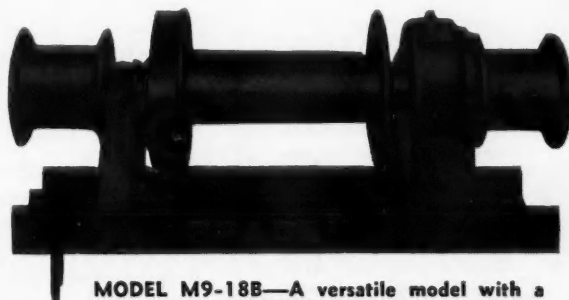


STRENGTH WITHOUT *Excessive* WEIGHT

■ The weight of a metal doesn't always determine its strength. Excess metal on a piece of equipment may add to the appearance, but it may not improve performance. In fact, excess weight increases initial cost and decreases pay load.

BRADEN Engineers constantly strive for metal designs that are light in weight, but have the necessary strength for top performance. That's why you'll never find excess weight in a BRADEN Winch. Compare the weight of any BRADEN Winch with that of any other winch of comparable rated capacity.

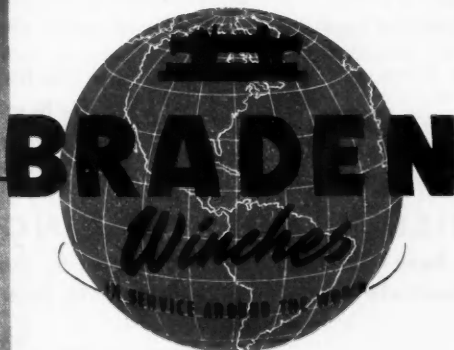
**BUY BRADEN — They Are Safer**



MODEL M9-18B—A versatile model with a load rating of 18,000 lbs., and a gear ratio of 44 to 1. Equipped with the New OIL-COOLED, FULLY ADJUSTABLE, AUTOMATIC SAFETY BRAKE.

**BRADEN WINCH COMPANY**

1001 East Admiral Boulevard



**TULSA 3,**

**Oklahoma**

# Fleetman's LIBRARY



## NEW HI-TEMP Trade Mark HEAT-RESISTING VALVE INSIDES & CAPS *Developed By* **DILL** Reg. U.S. Pat. Off.



### DILL "HI-TEMP" VALVE INSIDES No. 100-AH

New Dill special heat-resisting rubber gasket in cup and on barrel.



### DILL "HI-TEMP" VALVE CAP No. 632 Dome Type

Heavy duty cap with swivel gasket of new Dill special heat-resisting rubber.



### DILL "HI-TEMP" VALVE CAP No. 631 Hexagon Type

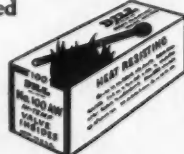
Lead gasket mounted over brass sleeve.

### LICKS TIRE HEAT PROBLEMS FOR TRUCK AND BUS TIRES

*Dill has it!* The newly discovered Dill special heat-resisting air seal that keeps tire valve insides and caps *air-tight*, without sticking, under abnormal hot tire temperatures, even up to 300°F and more.

Tire engineers and fleet owners, everywhere, are acclaiming this sensational development. Dill special heat-resisting rubber solves air pressure maintenance wherever tire heat is a problem—stops road delays, costly tire repairs, and increases tire mileage.

Change to the new Dill "Hi-Temps," today. Your wholesaler, tire or oil company can supply you, now.



Ask for Dill "Hi-Temp"  
in the New Orange and  
Yellow Carton

## THE DILL MANUFACTURING CO.

700 East 82nd St.

Cleveland 3, Ohio

Branch—1011 S. Flower St., Los Angeles 15, Calif.

**MOTOR MANNERS**, a 48-booklet on driving technique based on the theme that a well-mannered driver is also a safe driver, and that poor manners on the highway can be murder! It was written by Emily Post without fee and is sponsored by the National Highway Users Conference, National Press Building, Washington 4, D. C., from whom sample copies and quantity price list may be obtained.

**TOOL ENGINEER'S HANDBOOK**, a 2300-page book containing tested and proven know-how of modern manufacturing in mass production fabricating industries. The American Society of Tool Engineers has incorporated the following types of material in the manual: planning and control of production; metal cutting; welding; inspection and testing; machine tool controls; threads, bearings and gear designs; mathematics and reference tables, among other subjects. Write J. M. Cannon Associates, 523 Penobscot Building, Detroit, for further information.

**GREY-ROCK CATALOG**, containing 104 pages illustrating and describing the complete line of Grey-Rock bolt-on blocks, balanced trucksets, rivet-on sets, clutch facings, fan belts, etc. United States Asbestos Division of Raybestos-Manhattan, Inc., Manheim, Pa.

**THE MORRISON CARRY ALL**, a four-page bulletin illustrating and describing the new all-steel, all-purpose service and utility body. Morrison Steel Products, Inc., Buffalo, N. Y.

**OTC CATALOG No. 49 J** showing special tools for special service needs and information on how to remove and install bearings, gears, hubs, pinions, collars, pulleys, shafts. Write Owatonna Tool Co., Owatonna, Minn.

**ALUMINUM STRUCTURAL DESIGN**, a 124-page handbook on how to design load-carrying aluminum structures. Text shows how to figure tensile stresses, bending stresses, formulas and actual examples of converting to aluminum structure. A section is devoted to fabricating and joining methods, including riveting, bolting, fusion welding and spot welding. Reynolds Metal Co., Louisville, Ky.

**SOUTH BEND CATALOG No. 67**, describing the new South Bend No. 2-H turret lathe, now available from South Bend Lathe Works, South Bend, Ind.

**MANUAL OF DESIGN FOR ARC WELDED STEEL STRUCTURES**, a 300-page manual covering fundamentals of design, materials, inspection, estimating and engineering control of welding and related operations. Price is \$3.00. Air Reduction Sales Co., New York, N.Y.

**ARC WELDER SPECIFICATIONS CATALOG**, an 8-page, 2-color catalog containing illustrations, descriptions, dimensions and specifications on the complete line of Hobart Simplified arc welders. Hobart Brothers Co., Troy, Ohio.

**BULLETINS P-400 AND BM20-R**, covering the Bellows air-powered impact and arbor presses and the air motors, respectively; available by writing The Bellows Co., Akron, Ohio.

**PROTO TOOL CATALOG**, a 64-page, pocket size catalog listing and describing the line of Proto Tools for fleet shops. Write Plomb Tool Co., Los Angeles, Cal.



# Road Servicing a Decentralized Fleet

Continued from Page 77

necessary for the driver to shut off his engine, if static conditions interfere. Experience shows, however, that such a condition seldom develops, and the remedy is occasional servicing of the telephone.

The next entry item on the Truck Service Report will record "Time Released." This fill-in will be made as soon as the road-service mechanic reports back, at the completion of each servicing job. This job-completion report will be made usually over a regular telephone to save money. The company is charged for each out-going call from a mobile telephone at the rate of \$25.00 per month for a maximum of 40 calls; and a 30-cent charge for each additional call.

When the mechanic makes his completion report, he either is advised of another call or he may be given a "stand-by" suggestion. Normally, he would start back toward his headquarters garage. A possible exception might be a suggestion that he remain in the near vicinity of one or more of the most active delivery jobs then under way.

The call-back enables the dispatcher to fill in on his report form the resultant "Time Delayed," as related to the truck which sent the service call. There are several conditions under which this item of "Time Delayed" might develop into control importance. First, it will be entered on the detailed record of the ton-mile service of this particular truck. Second, the item might become important to the on-duty schedule and work record of the driver since the Daily Service Report will show the exact period of operating delay. Third, the report would provide factual details to explain or defend delays in fulfillment of scheduled deliveries.

## No. 1 Item, Flat Tires

A CONSIDERABLE percentage of all Consumers Co. road-failure calls pertain to "flat tire." Hence it is important that the mechanic report, either during his call-back or on his complete daily report, certain specific information, which is recorded in the "remarks" space on the office report form. This will include: (1) wheel location of the new tire replacement; (2) company number of old tire; (3) company number of new tire; (4) speedometer reading. The entries are made in coded form and later transferred to tire records.

Another special problem is the fact that service trucks must carry a con-

siderable variety of different tire sizes in use on the fleet. This often makes it rather difficult for the driver-mechanic to keep a sufficient stock on his comparatively small road-servicing truck. So the company maintains extra reserve tires at a number of convenient pickup points, including its small decentralized

garages. In general, each of the two service trucks plans has a total of eight or nine inflated tires, in the five or six most popular sizes.

Since the company's heavy-duty trucking operation is widely distributed over the total Chicago metropolitan area, the delivery of new tires as needed and the re-assembly of the tires that must be repaired, represents a considerable hauling job. This has become an important part of the work performed by the two road servicing

(TURN TO NEXT PAGE, PLEASE)

## ONE MAN Removes Dual Wheels in ONE OPERATION with the DRUM TWIN-DOLLY *Safety JACK*



# NO

**Dangerous Greased Plates  
Cumbersome, Expensive Dollies  
Crawling Under Trucks or Buses  
Heavy Wheels to Lift**

Get faster brake-bearing-wheel service with the DRUM SAFETY JACK. Available in 12-Ton single-dolly and twin-dolly models. Approved by leading fleet and bus operators.

**MAIL COUPON TODAY!**



**THE CLEVELAND PNEUMATIC TOOL CO.**

3769 EAST 77th STREET, CLEVELAND 5, OHIO

We would like to know more about the DRUM SAFETY JACK.

Company .....

Address ..... City .....

## Road Servicing - - -

Continued from Page 123

trucks. All company repair of tires is handled at its headquarters South Side garage. There the company does general vulcanizing and some section work. Part of the section work, and the comparatively small amount of recapping work that now is being authorized, is sent to outside specialized shops.

One of the servicing trucks has headquarters at the South Side garage. This

makes it possible to utilize the slack-time of the mechanic-driver of this truck on days when emergency road calls are slack. The other servicing truck has headquarters at a centrally-located coal yard on the North Side, where there also is one of the company's nine decentralized garages. This truck has full-time road servicing operations and covers a wide North and West Side area.

### Other Offenders

IN O'Laughlin's opinion it would be a close vote as to whether the No. 1

trouble-maker requiring road service would be "electrical equipment" or "tires." But he definitely would classify "rear axle" as the No. 3 trouble maker; "hydraulic hoist" as No. 4; and "fuel line" as No. 5.

In commenting upon electrical equipment failures, O'Laughlin questions the need for some of the elaborate electrical lighting on some trucks. It is his experience that the average shop mechanic is unable to follow through on the electrical systems of all the different makes of trucks found in the average fleet. Of course if a company should have only one make of truck, mechanics soon would become specialists on this make.

### \$5000 for Each Service Unit

CONSUMERS CO., roughly estimates that each of their road-servicing trucks represents a \$5,000 investment. Each has a 10-ton manual lift crane at the rear, and lock tool-boxes along two-thirds of the sides of the open flat box body. At first glance it might appear that they carry almost nothing but a mass of extra tires. But the body and boxes are crowded with heavy-duty road-servicing equipment. This includes heavy drag chains and long cables needed if a truck must be "snaked" out of the mud, and a towbar for use in towing a disabled truck to the garage.

On one of them, we noted two 8-ton hydraulic jacks, two Simplex jacks which lift 15 tons each and are used to change tires when the truck is loaded, a collection of wood blocks and short boards, seven different styles of axle drive shafts (weighing 50 lb each), hoist shafts, two fire extinguishers, a small vise mounted on the frame of the truck, five-gallon cans of extra hoist oil and transmission oil, and a multitude of miscellaneous spare parts.

The latter included four different types of magnetos, carburetors, fans and belts, six types of fuel pumps, and some universal hoist joints, a large variety of nuts and bolts, washers, tire lug studs and nuts, hoist chain, gas line and air line tubes and connections, battery cables, 25 fan belts of different types, water hose, brake connections, distributor parts, spark plugs, ignition coils for 6 and 12-volt, rotors and fuses, condensers, wire terminals, universal joints for throttles, distribution caps in four styles, a variety of light bulbs, taper pins, and a complete assortment of tools.

END

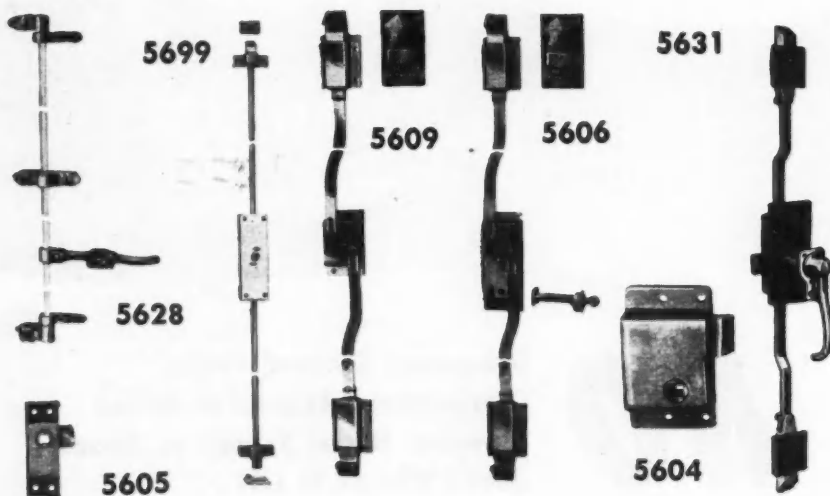
(Please resume your reading on P. 78)

COMMERCIAL CAR JOURNAL, July, 1949

## VERSATILE in Application TO LIGHT AND HEAVY TRUCK BODIES

**EBERHARD**  
*Purpose Tested*  
**LOCKS**

... are durably constructed for long, heavy usage and designed for pleasing appearance that blends in well with a majority of body designs. Simplified installation with flexibility in application characterizes the EBERHARD line of "Purpose Tested" Locks.



You are almost certain to be confronted with a need for one or more types of Eberhard Locks.

Familiarize yourself with the complete EBERHARD line of automotive hardware by writing today for the latest Eberhard Catalog.

**EBERHARD** *Long Run*  
**TRUCK BODY FITTINGS**

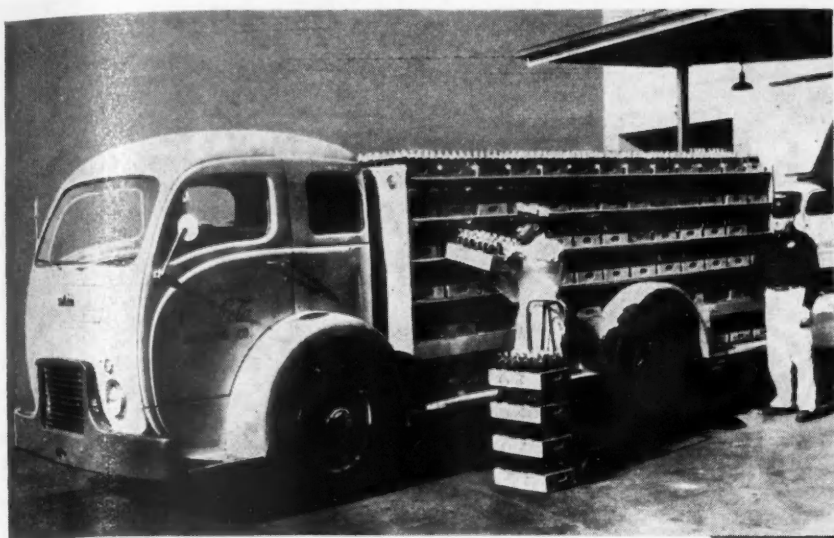


EBERHARD MANUFACTURING CO.

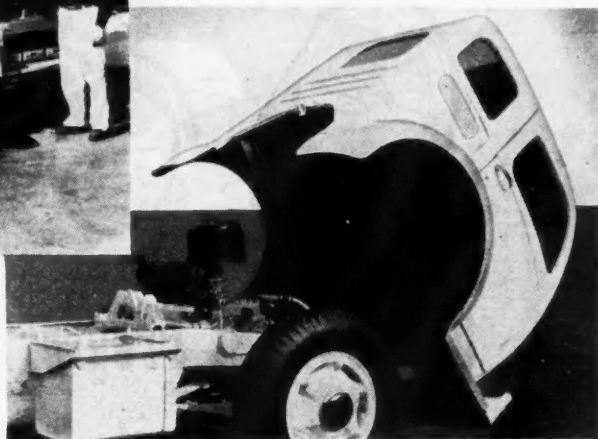
Division of the Eastern Malleable Iron Co.

EVARTS AVENUE

CLEVELAND, OHIO



The new WHITE truck  
Super Power Series 3000



# PARISH

## Serves Again

The WHITE Motor Company are celebrating their fiftieth year as Motor Truck Manufacturers with the announcement of a fundamentally new design in motor trucks the "Super Power Series 3000".

These new trucks maintain the traditional high quality engineering, material and manufacture that have always been the policy of White.

The PARISH PRESSED STEEL CO. are very proud that PARISH Pressed Steel Heat-treated Frames are a contributing part of these "Super Power Series 3000" White Trucks.

PARISH Heat-treated Frames are made of special steel and alloys and formed by presses that have a capacity of 3000 tons. They have a strength value 125% greater than steels commonly used and will hold the parts attached to them in correct position while a rough road and a heavy load try to bend, wrench, shake and twist them out of shape.

This punishment goes on for years. How many depends on the design and fabrication of the frame. PARISH frames last years longer than the usual type frame.

If you, too, are seeking to reduce distribution costs remember to specify PARISH Heat-treated Frames when buying new trucks or replacing worn-out frames. Buy the frame with the "Spring-back"—the "Keel of the Chassis."



**PARISH**

Heat-Treated Frame

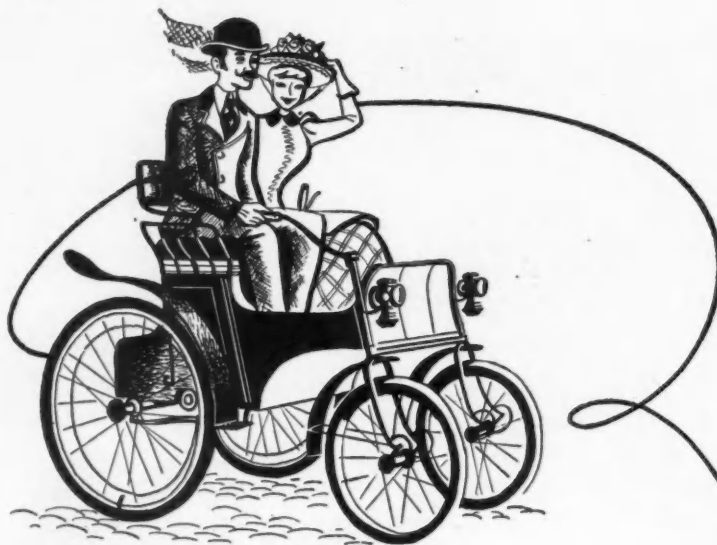
The Keel of the Chassis

PRESSED STEEL HEAT-TREATED FRAMES FOR TRUCKS AND TRAILERS

**PARISH PRESSED STEEL CO. Subsidiary of DANA CORP.**  
**READING, PA.**

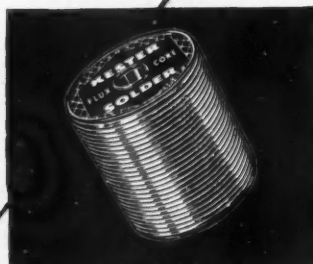
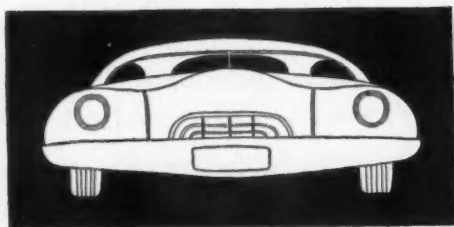
Western Representative: F. Somers Peterson, 524 Folsom Street, San Francisco, Cal.





## 50 Years of Progress with Kester Solder

*In the automotive industry 50 years ago,  
a great many parts were made of brass  
or copper. Headlamps and other lights,  
intake manifolds, radiators, horns,  
tubing, conduits, and gasoline  
tanks were all soldered.*



### THE LEADER IN THE FIELD

Today, Kester Acid-Core Solder is a necessity for fast, efficient repairs even as it was in those early days. Insist upon it from your jobber.

*Standard for the Automotive Trade Since 1899*

Kester soldering fluxes . . . salts, paste, and liquid . . . are available in several handy-to-use units. Order them from your jobber today.

### KESTER SOLDER COMPANY

4201 Wrightwood Avenue, Chicago 39, Illinois

Factories Also at

Newark, New Jersey • Brantford, Canada



**KESTER  
SOLDER**

## Quiz Answers

See page 22

1. False. Antimony is used to stiffen and strengthen the soft lead, render the grid less susceptible to corrosion and keep the battery weight to a minimum.

2. False. The electrolyte, which is a water solution of sulphuric acid used to release the energy in the active materials of the battery, normally contains 38 per cent sulphuric acid by weight or 27 per cent by volume.

3. False. The positive terminal is larger at the top, 11/16" in diameter while the top of the negative terminal is 5/8" diameter.

4. False. The following table illustrates the typical range of specific gravity for a cell in various stages of charge.

1.280 spec. grav.	100% charged
1.250 " "	75% "
1.220 " "	50% "
1.190 " "	25% "
1.160 " "	Very little useful capacity
1.130 " "	Discharged

5. False. The open circuit voltage of a fully charged cell is about 2.1 volts for acid of about 1.280 specific gravity regardless of the size of the cell. A 6 volt battery is, therefore, made up of three "2 volt" cells while the 12 volt battery is made up of six "2 volt" cells.

6. True. Gas leakage causes the plug to overheat and a very slight leak between the insulator and shell leads to "blow-by" which causes loosening of the insulator.

7. True. The length of the tip insulator determines the length of the path for the heat to follow to the cooling medium. Thus, other things being unchanged, more heat will be transferred to the longer insulator resulting in a hotter operating plug.

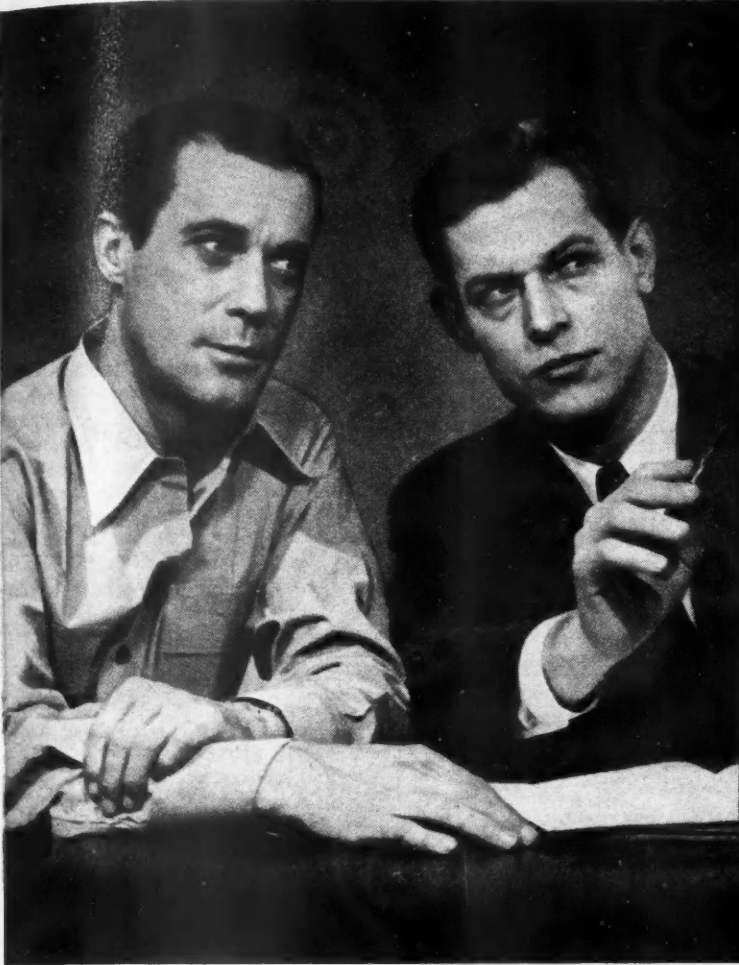
8. True. Use of a ribbed insulator lengthens the electrical leakage path and thus builds up a resistance to flash-over.

9. True. During combustion there are certain quantities of lead oxide and lead salts formed in the cylinders which, in time, deposit themselves as a coating on the tip of the insulator. In normal operations these oxides are in the form of loose powder with little effect on performance but with increased engine temperatures, the salts and oxides fuse to become electrical conductors and tend to short out the plug.

10. True. While a lean carburetor mixture or poor circulation of the coolant could also be the trouble, an overheated plug can cause blow-by which contributes to pre-ignition or automatic slowing down of the vehicle after running at high speed for a short period of time.



"Well, let's get this stuff back on the van, and start rolling."



# PERCENTAGES BY WHICH PUROLATOR MICRONIC ELEMENT EXCELLED COMPETITIVE TYPES

COMPETITOR	IN AVERAGE DIRT RETENTION PUROLATOR LED BY:
A	199%
B	220%
C	113%
D	547%
E	164%
F	619%
G	255%
H	339%
I	318%
J	193%
K	237%

AVERAGE PUROLATOR SUPERIORITY  
**290%**

## "Pass up the fancy talk—take Purolator's proof of greater engine protection!"

**W**HY BE SOLD on a second-rate oil filter . . . when it's just as easy to buy Purolator's *complete* filtration. The test results above are *proof* that the Purolator Micronic Oil Filter gives your fleet engines *greater* protection from dirt and abrasives . . . cuts lay-up time by preventing unnecessary engine repairs.

*And it's all because of Purolator's exclusive Micronic element!*

This *Micronic* element filters particles measured in microns (.000039 of an inch) . . . has an accordion-pleated design that provides a filtering surface 5 times that of old-style filters. Thus—it removes 290% more engine-wrecking abrasives from the

oil stream . . . does not permit channeling or unloading.

Guard against down-time and unnecessary repair bills by equipping your entire fleet with Purolator Micronic Oil Filters *now*. Your nearby Purolator supplier has a genuine Purolator Refill for almost every type of vehicle and oil filter made.

**PUROLATOR PRODUCTS INC.**  
Newark 2, New Jersey  
and Windsor, Ontario, Canada



# Washington Runaround

Continued from Page 10

in the communications zone to a much larger extent than ever before, and it is conceivable that they might largely supplant ground transportation for the longer hauls."

As for railroads, the text expresses doubt "if railways will ever again be of major importance within the communications

zone as they will be too vulnerable, and the war will have moved on before repairs can be made. They will, of course, be used to the greatest extent possible under the circumstances."

The Army also points out that "transportation is apt to be more radically changed by new developments in warfare

than any other logistical service, because of the new developments—larger, faster, and longer range aircraft—as a means of transportation." While admitting that air transportation of even the heaviest equipment will be necessary in any future war, the Army warns its supply officers that "it is doubted if the industrial potential of the nation could support a program to move all of the supplies required by a distant theater of operations by air." Petroleum is used to illustrate this point.

## Impartial Investigation

Preliminary staff work on the investigation of all domestic surface transportation being conducted by a Senate Subcommittee on Interstate and Foreign Commerce indicates that the inquiry is definitely starting out on an impartial basis and is not being slanted so as to favor any one form of transportation. The Subcommittee is headed by Senator Myers (D., Pa.) who has never been very closely associated with transportation problems. Even more important is the fact that the staff director, E. R. Jelsma, a career government man, drafted from the Navy Department, has never before been associated with Capitol Hill or with any position involving transportation. His primary interest is business policy and management control. He is an experienced accountant and statistician.

The investigation, authorized by the Senate, covers motor carriers, railroads, inland water carriers, pipelines, freight forwarders, the Railway Express Agency, the Pullman Company and railroad holding companies. "We want to determine," states Senator Myers, "whether present policies in domestic land and water transportation provide for fair and impartial regulations; for the promotion of safe, adequate, economical and efficient service; for the fostering of sound economic conditions in transportation and among the several carriers."

Public hearings will not get underway until late fall.

The committee staff is deeply concerned with the lack of adequate statistical data on trucks, water carriers and pipelines, and will fill the gaps with the best available estimates. The information being gathered includes data on public expenditures, net property investment, ton and passenger miles, government regulations, charges for transportation services, and wage levels and working conditions. This information is being put together in such a fashion that quick visual comparisons between the various types of carriers will be available when the hearings begin.

## Mass Rebuilding Program

Approximately 38,000 transport vehicles and trailers of all types, 300,000 tires, 93,000 tubes, and thousands of engines, assemblies, axles and other parts have been rebuilt by Army Ordnance installations in Germany during the past two years. This equipment has an estimated replacement cost of \$220 million, about twice the original cost. Rebuilding and reclaiming it cost about \$35 million, including \$5.2 mil-

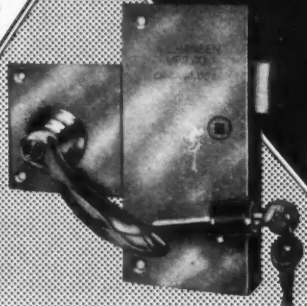
(TURN TO PAGE 130, PLEASE)

*Where Money's at Stake—Protect Your Investment*

*with Hardware that's  
Strong  
Dependable—  
Durable—  
Safe!*



No. 12

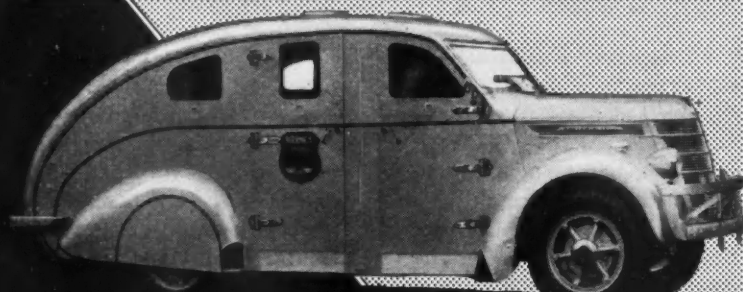


No. 60-6L

**Hansen**



Above, at left—No. 12 Leaf-Type Steel Hinge. 3-ply. Size, 12" strap, 2 1/4" wide. Spot-welded leaves. Above, at right—No. 60-6L Lock, fitted with cylinder and two keys. Size, 6 1/2" long, 7 1/4" high. 1 1/4" hardened striker bolt. Lock is tamper-proof.



MONEY by the millions is hauled in the Brinks Express armored car shown. It is fitted with Hansen Special Lock No. 60-6L and Leaf-Type Steel Hinges, illustrated. Lock has cylinder and spring light enough to permit opening door from outside with key.

Hansen Hardware is especially adapted to the varied requirements of body builders, fleet operators and designers. Rugged, simple in design, easy to apply and durable, Hansen stands the test of continual service.

WRITE FOR  
CATALOG

**A. L. HANSEN MFG. CO.** 5047 RAVENSWOOD AVE.  
CHICAGO 40, ILL.



# Sure Ignition..

..AT ALL  
SPEEDS



***\$1.25** and worth it!*

The new Hastings Aero-type Spark Plug brings many advantages to fleet owners and operators—and one of the greatest is *full-range* ignition.

With Hastings Aero-type, every engine gets correct firing at low speed . . . the same sure spark at top speed . . . steady, trouble-free ignition when idling or pulling the steepest hill. There is less fouling, too, and less pre-ignition—which mean longer spark plug life.

The Hastings Plug gives this improved performance

because it's built to aircraft standards, with the insulator developed in World War II for fighters and super-forts. Its performance rated by the same tests given aircraft plugs. It's X-ray inspected, for uniformity, for proper construction and heat flow.

Start using Hastings Aero-type now—the super plug for super service.

If Hastings Spark Plugs are not yet available in your territory, write direct for illustrated catalog. Distribution is being developed as rapidly as possible—your jobber will be able to supply you soon.



SPARK PLUG DIVISION, HASTINGS MANUFACTURING CO.  
HASTINGS, MICHIGAN

*Fleet Owners  
all over*

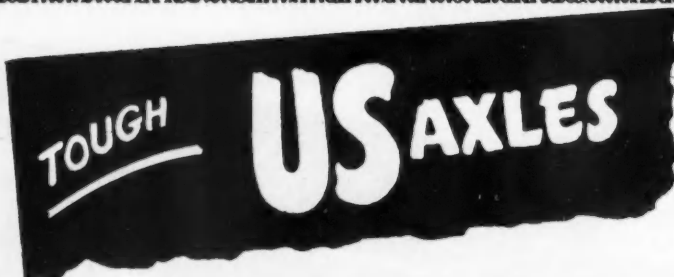


*rely on the  
that sells  
U.S. Axles*



*Because:*

U. S. Axles are tough. Better road performance with fewer failures—that's the record of U. S. Axles for over twenty-five years. They're made tough because of best alloy steels, correct engineering, precision machining, modern scientific heat treating and rigid testing. Each is guaranteed mechanically perfect.



THE U. S. AXLE COMPANY, INC.  
POTTSTOWN, PENNA.

## Washington Runaround

Continued from Page 128

lion for American materials, and \$29.8 million for German labor and materials.

This reserve stock of restored equipment contributed greatly to the support of the Berlin airlift, and, in one instance replaced 1000 Air Force vehicles, including truck-tractors and trucks, without delay.

About 15,000 German employees are currently engaged in vehicle rebuilding. The cost of rebuilding in Ordnance shops varies from 20 to 60 per cent of acquisition cost. Typical are costs for the ¼-ton jeep, and the 2½-ton, 6x6. Under wartime procurement, average cost of a jeep was \$1051. Rebuilding in Germany costs about \$690. The 6x6, with an average wartime cost of \$2850, has a present rebuild cost of \$1120.

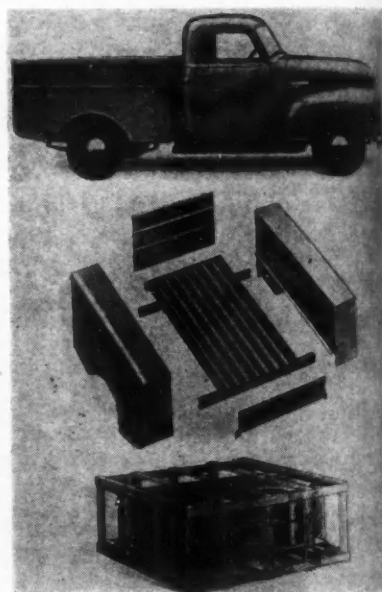
### Washington Miscellany

Marshall Plan authorizations for motor vehicles, parts and accessories from the beginning of the program in April, 1948, to June 1, 1949, totaled \$109.3 million. Petroleum shipments under the Marshall Plan also continue to rise. . . . The Corps of Engineers, at the request of the Department of Interior, has awarded a \$1.3 million contract for a survey in 37 states and Alaska, to determine suitable general areas for the manufacture of synthetic liquid fuels.

END

(Please resume your reading on P. 15)

### Knocked-Down Service Body



Artisan Products, Inc. of Cleveland has just introduced the low-priced knocked-down service body shown above mounted on Chevrolet truck, in major components and in crate. The five major sections include sides complete with wheelhousings, front section, corrugated steel floor and tail gate. 75 in. long, it fits ½-ton chassis

# WORLD BESTOS brake blocks give us BEST BRAKING performance



● The Hudson Supply & Equipment Co. of Washington, D. C. is one of the largest building supply houses in the East. For delivery of their heavy materials and fuel oil they operate a fleet of 88 units composed of 58 trucks, 15 tractors and 15 trailers. A pace-setter for progressive operators everywhere who have standardized on World Bestos Blocks, Hudson has been a constant user for the past six years.

"World Bestos Brake Blocks give us the best braking performance," says Mr. James F. Hughes, Maintenance Manager. "On our regular hauls we encounter conditions that include city, open highway, and winding roads with steep grades. With World Bestos Blocks we are assured of minimum maintenance costs and positive braking control."

Available in formulations to meet every heavy duty braking need, World Bestos compounds wear slowly and evenly under the most severe braking conditions while providing a stable, resilient friction under all operating heats and pressures. For proof of their performance, reline with a set of World Bestos Brake Blocks and compare them with those you now use.



BRAKE LININGS BRAKE BLOCKS



## WORLD BESTOS CORP.

NEW CASTLE, INDIANA



# Cold Rubber Facts for Fleets

Continued from Page 31

sure, there is little possibility of the synthetic product being crowded out of the picture. There is some evidence that the tire manufacturers under pressure of stiff competition would like to see the minimum requirement reduced so as to get lower material costs while natural rubber is at a lower price level. However, the

thinking in the industry is that there will not be much of a reduction, if any, in the minimum requirements. For one thing, any large movement toward greatly increased use of natural rubber probably would drive the price back up again and any company would have to see a definite price advantage for at least six months be-



## BIEDERMAN

### The All-Star Truck

- ★ Advanced Design
- ★ Ready Accessibility of all Parts
- ★ Sturdy Construction
- ★ Dependable Power
- ★ Capacity for Big Loads

### FLEET OPERATORS

FIND THE ANSWERS TO THEIR PROBLEMS WITH BIEDERMAN TRUCKS. WIRE OR WRITE BIEDERMAN MOTORS CORPORATION, CINCINNATI 14, OHIO.

**BIEDERMAN MOTORS CORPORATION**  
CINCINNATI 14, OHIO

fore it could safely go into expanded use of natural rubber. It is not believed that the current price relationship between the two types of material will greatly affect the development program on the man-made rubber.

One interesting observation about the current battle of the rubbers is that even those companies which have not been overly enthusiastic about cold rubber are offering it in passenger car tires indicating that it does have considerable merit.

#### Still in Short Supply

**A**CTUALLY, there is not enough cold rubber available, nor will there be before the end of this year, for all companies to use as much of it as they would like to have. Currently it is under allocation, with each company getting a quota based on historical performance. In fact, the smaller companies that were active in developing and promoting the use of cold rubber probably are getting a little more than their historical share. Another weather-vane of some significance is that the government in cooperation with industry is rapidly converting a sizable part of rubber producing facilities in this country to cold rubber. By the end of this year capacity should be just a little short of 200,000 tons annually which is about 30 per cent of the maximum production capacity of the synthetic rubber plant in the U. S. and is equal to about 46 per cent of the total of all synthetic rubber used in the U. S. last year.

It also should be remembered that the tire industry today is embroiled in one of the deadliest competitive battles in its history, and that fact may account for a lot of the jockeying for position in the cold rubber situation. The position of the larger companies will be more clearly evident when the supply of cold rubber is adequate for them to use all they can get.

#### Truck Tire Tests

**W**HEN it comes to the use of cold rubber in truck tires, it is a different story. The smaller companies, particularly those in the Copolymer group, are optimistic about using the new rubber in truck tire treads at least. Actually, not too much testing has been done as yet but one of the companies reports that with a relatively small test, results have been encouraging. On 7.20 10-ply tires, results were almost equal to those obtained on passenger cars so far as tread wear and cracking resistance was concerned. The company also ran tests on 9.20 truck tires at speeds of 45 to (TURN TO PAGE 134, PLEASE)

Extra smoothness, zip and power!!



## Extra profits with the CASITE TREATMENT

CASITE THROUGH  
THE AIR INTAKE



CASITE IN THE  
CRANKCASE

According to directions on container

● Here's the sure cure for sludged-up, gummed-up engines—and the quick, easy way to get better and smoother engine performance.

The Casite Treatment cleans engines, keeps them clean and free running. Casite through the air intake removes binding gum and goo, releases sticking valves and rings. And Casite,

added to the crankcase, helps oil get around quickly and into the tight spots—retards wear, cuts repair bills.

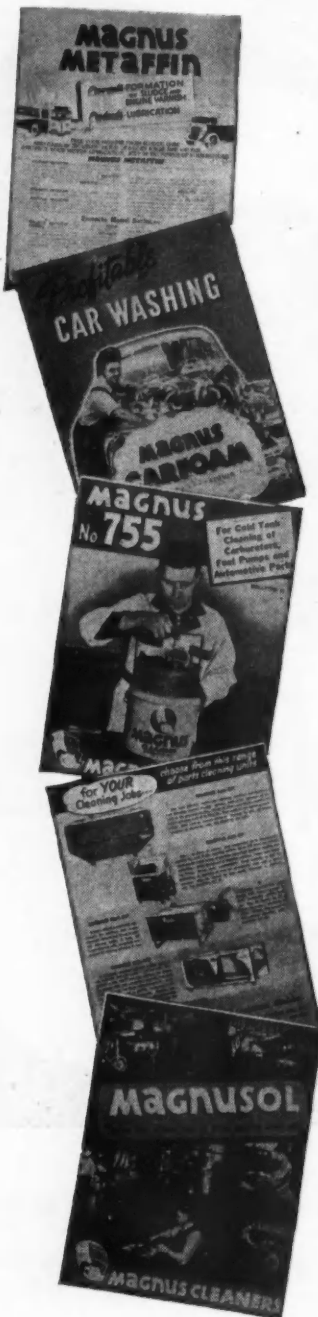
Fleet owners and operators everywhere specify regular Casite Treatments as standard maintenance procedure for all equipment. It will pay you to get into the habit.

THE CASITE CORPORATION • HASTINGS, MICHIGAN

Better and Smoother performance or Double-Your-Money-Back

# CUT COSTS on Your 5 Basic Cleaning Jobs

with  
**MAGNUS**  
MATERIALS  
and  
METHODS



## ... and Slice Your Over-all Maintenance Costs, too!

There are five basic cleaning operations for truck and bus fleets. On every one of them Magnus materials and methods will give you faster, more economical cleaning. Moreover, because these methods insure better cleaning geared into a sound preventive maintenance program, they will cut your over-all maintenance costs.

### Engine and Chassis Cleaning with Magnusol

Fast, thorough removal of grease and dirt for inspection, adjustments and repairs. Spray on the Magnusol-solvent mix. Let soak. Rinse off. No heat. No hazards. Covered in Bulletin #21.

### Desludging with Magnus 755

Removal of sludge deposits from all parts of the engine without dismantling. Drain the oil. Fill with Magnus 755. Idle engine one hour. Drain, flush and refill with fresh lube oil. That's all. Get Bulletin #37 for details.

### Sludge Prevention with Magnus Metaffin

Dependable control of sludge formation, particularly on "stop and go" routes. Add Metaffin to the lube oil to maintain the concentration called for by your road schedules. See Bulletin #23.

### Cleaning Carburetors, Fuel Pumps, etc., with Magnus 755

Faster, better cleaning of all parts with carbonized oil deposits without hand work. Magnus 755 works well in still solution, but lightning fast in Magnus Aja-Dip Cleaning Machines. Data in Bulletin #31.

### Engine Blocks and Parts Cleaning in Magnus Machines

There is a complete range of Magnus Cleaning Machines from which to select the type and sizes best suited to your cleaning volume... from Magnus Kol-Dip and Hot-Dip Tanks to the high speed Magnus Aja-Dip Cleaning Machines. They are all covered in Bulletin #51.

Write for these bulletins and see for yourself how Magnus can help you to faster, better cleaning and set up a more dependable preventive maintenance program.

**MAGNUS CHEMICAL COMPANY** • 38 South Ave., Garwood, N. J.

In Canada—Magnus Chemicals, Ltd., 4040 Rue Masson, Montreal 36, Que.

Service representatives in principal cities



## Cold Rubber Facts

Continued from Page 132

60 miles per hour under 50 per cent overload. Results of this test showed a 14 per cent gain in tread wear. The big problem, however, has not been answered, namely, how the tires will stand up under continuous pounding at high speed under extreme conditions of heat and load.

It is pretty well agreed among all companies that a great deal of work remains to be done before any conclusive evidence is in about use of cold rubber in the large size, heavy-duty, over-the-road truck tires. It is interesting that practically all the large companies are already testing cold rubber truck tires or are preparing to do so soon. One company is waiting until the hottest part of the Summer to run its tests when the average temperature is around 100 deg. A tire development engineer for one company, just under the Big Four group in size, says that it is now possible to make a cold rubber truck tire nearly as good as natural and is optimistic about making one that will be better eventually. He says that all that is needed is more time to improve compounding, processing, and actual tire building techniques.

Another very interesting development is the large experimental program now under way by the Armed Forces with its test fleet in Texas. The purpose of the test is to determine how far it is possible to go with synthetic rubber in large heavy-duty truck tires. At the end of the war certain large sizes were compounded with both synthetic and natural rubber and it was generally acknowledged that the performance was short of satisfactory standards. The objective now is to make extensive tests of all new developments to see whether or not the percentage of synthetic in large sizes can be greatly increased or possibly be used entirely in place of natural rubber.

### Still More Improvements Coming

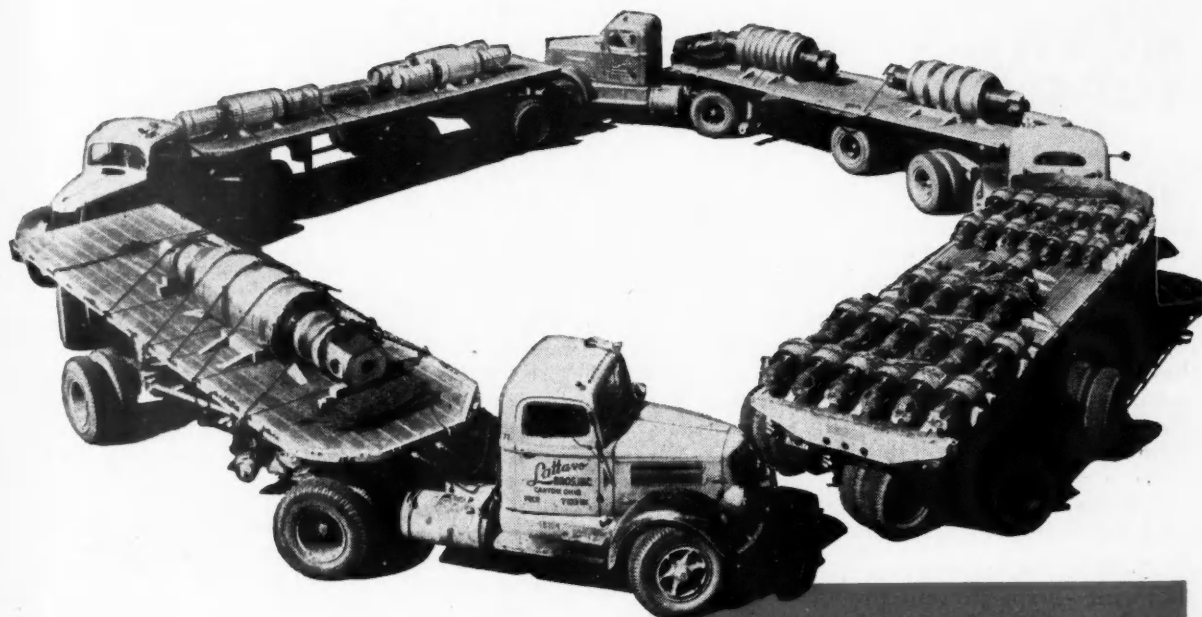
IN addition to the advent of cold rubber and development of the new better carbon black there are other improvements in the works that may bring the day nearer when synthetic rubbers will approach or surpass natural rubber in all-around performance. The particular cold rubber currently being used is the third compound since cold rubber was put into commercial production, a little more than a year ago, and others are on the way. The next step in cold rubber seems to be some method of introducing the carbon black into the

(TURN TO PAGE 136, PLEASE)



# A good turn

*that pays off in trucking circles*



**A**CROSS the country, more and more Hoobler Undercarriages are going into service as word spreads about the big advantages, *big savings*, they cinch.

Note the "outrigger" action in the above photo. As you can see, this means greater stability, better support on curves. It also demonstrates how the wheels of Hoobler-equipped "Monotrailors" follow closely the tractor tracks, permitting tighter turns : : : and with no tire scuffing! Likewise, drivers can snake through traffic and in and out of narrow places quickly : : : easily : : : safely!

Not the least important, the Hoobler Undercarriage also makes possible increased payloads, greater tire mileage, cuts running time,

and reduces the over-all cost per ton mile:

You'll be interested in still other important Hoobler advantages. For complete information on use with vans, high-sides, tankers or flat-tops (28 feet and over), write The Union Metal Manufacturing Co., Canton 5, O.

EQUIPPED WITH

**HOOBLER**

UNDERCARRIAGES



**UNION METAL**

DESIGNERS AND PRODUCERS OF STEEL PRODUCTS SINCE 1906

*Builder of The Hoobler Undercarriage*

## To Reduce Tire Maintenance Costs

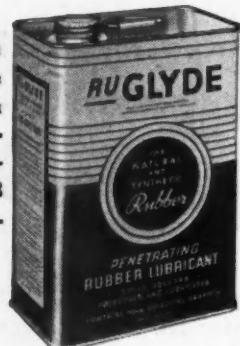


• Use assembly line methods in mounting tires—the way it's done at the factory on all new trucks.

To make sure that inner tubes and flaps slide—not stretch—into position and to guard against pinching and bead injury . . . the tires, tubes and flaps on new trucks and cars are lubricated with a *wet* lubricant before assembly. This conforms with the recommended procedure of tire manufacturers.

**RuGLYDE**—the ready-to-use, *wet* lubricant—helps prevent premature tube and tire failure . . . makes tire mounting faster and easier. 100% safe for both natural and synthetic rubber. No castor oil . . . no alcohol . . . no harmful soaps. Will not induce rim rust nor harm finishes.

Available through jobbers in one and five gallon cans with **RuGLYDE** tire applicator; also 8 oz. refillable dispenser.



AMERICAN GREASE STICK CO.  
Muskegon, Mich.

On and off the rim with **RuGLYDE** makes tire changing **SAFER, FASTER, EASIER.**



For dismounting stuck or rusted tires, apply **RuGLYDE** to both sides of tire along edge of rim. Allow few minutes for penetration, then proceed with tire removal.

**RuGLYDE®** Approved Rubber Lubricant  
Standard of the Industry since 1938

## Cold Rubber Facts

Continued from Page 134

liquid latex at the rubber manufacturing plant, rather than grinding it into the rubber as now is done during processing. There seems to be a definite shift to this type of mix known as "master batch" in the industry. The companies now using it report there is a definite processing advantage and that all things being equal, tires produced with such rubber give even better tread wear and much improved resistance to cracking.

### Heat is Biggest Worry

**I**N summary, the prospects for cold rubber in truck tires appears to hinge on results of considerably more testing and development work. The big problem to be solved is heat generation, since it is of small use to build tires with a tread that will give considerably more wear if the tire fails for some other reason before the extra tread life can be utilized. What is interesting is that the large companies are not ruling out cold rubber for truck tires absolutely, but are going ahead with tests to determine whether or not it can be used in its present state, and undoubtedly are, or will be, conducting development work. The smaller companies are more optimistic, but they too will run more exhaustive tests and will continue their development work. In short, cold rubber is so new and so controversial as yet that there is no conclusive report possible as to just what the ultimate possibilities are for truck tire use. Nonetheless, there are various degrees of optimism and it is entirely possible that a truck tire will eventually be built that will give longer life at lower cost.

For the time being, however, it appears that all the cold rubber available will go into passenger car tires where heat generation is no particular problem and also into the smaller sized truck tires, probably up to the 7.50 size. A point of interest to the passenger car tire owner is that cold rubber in the modern low-pressure tire may not give 15 to 20 per cent increase in tread wear when compared with the previous higher pressure tires. The tire companies officially say very little about comparative life of the two types, but it is generally understood that the newer lower pressure type does not appear to give the mileage that the higher pressure tire does. When compared on a like basis, however, cold rubber in passenger car tires will give longer service.

**END**

(Please resume your reading on P. 82)

## All Budd Wheel distributors can provide the same kind of service illustrated on the opposite page

AKRON—Motor Rim Manufacturers Co.  
ALBANY—Wheels, Incorporated  
ALBUQUERQUE—Wheels & Brakes, Inc.  
ATLANTA—Harris Automotive Service, Inc.  
BALTIMORE—R. W. Norris & Sons, Inc.  
BIRMINGHAM—Cruse-Crawford Wheel & Rim Co.  
BOSTON—New England Wheel & Rim Co.  
BUFFALO—Frey, the Wheelman, Inc.  
CHARLOTTE—Carolina Rim & Wheel Co.  
CHICAGO—Stone Wheel, Inc.  
CINCINNATI—Rim & Wheel Service, Inc.  
CLEVELAND—Motor Rim Manufacturers Co.  
COLUMBUS—Hayes Wheel & Spring Service  
DALLAS—Southwest Wheel, Inc.  
DAVENPORT—Stone Wheel, Inc.  
DAYTON—Rim & Wheel Service, Inc.  
DENVER—Quinn & McGill Motor Supply Co.  
DES MOINES—Des Moines Wheel & Rim Co.  
DETROIT—H. & H. Wheel Service, Inc.  
FARGO—Wheel Service Company  
GRAND RAPIDS—Rim & Wheel Service Co.  
HARRISBURG—Standard Wheel & Rim Co.  
HARTFORD—Connecticut Wheel & Rim Co.  
HOUSTON—Southwest Wheel, Inc.  
INDIANAPOLIS—Indiana Wheel & Rim Co.  
JACKSONVILLE—Southeast Wheel & Rim Co.  
KANSAS CITY—Borbein, Young & Co.  
KNOXVILLE—Harris Automotive Service, Inc.  
LOS ANGELES—Wheel Industries, Inc.  
LOUISVILLE—Auto Wheel & Rim Service  
MEMPHIS—Beller Wheel, Brake & Supply Co.  
MILWAUKEE—Stone Manufacturing Co.  
MINNEAPOLIS—Wheel Service Co.  
MOBILE—Mutual Wheel Co.  
NASHVILLE—Beller Wheel, Brake & Supply Co.  
NEWARK—Automotive Safety Inc.  
NEW HAVEN—Connecticut Wheel & Rim Co.  
NEW ORLEANS—Southern Wheel & Rim Co.  
NEW YORK—Wheels, Incorporated  
OKLAHOMA CITY—Southwest Wheel, Inc.  
OMAHA—Morgan Wheel & Equipment Co., Inc.  
PEORIA—Peoria Wheel & Rim Co.  
PHILADELPHIA—Thomas Wheel & Rim Company  
PITTSBURGH—Wheel & Rim Sales Co.  
PORTLAND—Six Robbles, Inc.  
PROVIDENCE—New England Wheel & Rim Company  
RALEIGH—Carolina Rim & Wheel Co.  
RICHMOND—Dixie Wheel Co.  
ROCHESTER—Frey, the Wheelman, Inc.  
SALT LAKE CITY—Henderson Rim & Wheel Service  
SAN ANTONIO—Southwest Wheel, Inc.  
SAN FRANCISCO—Wheel Industries, Inc.  
SEATTLE—Six Robbles, Inc.  
SOUTH BEND—Wire & Disc Wheel Sales & Service  
SPOKANE—Bearing & Rim Supply Co.  
SPRINGFIELD, ILL.—Illinois Wheel & Brake Co.  
SPRINGFIELD, MO.—Borbein, Young & Co.  
ST. LOUIS—Borbein, Young & Co.  
SYRACUSE—Colbourn Wheel & Rim Service, Inc.  
TACOMA—Six Robbles, Inc.  
TOLEDO—Wheel & Rim Sales Co.  
WICHITA—Borbein, Young & Co.

### EXPORT

CLEVELAND—C. O. Brandes, Inc.

### CANADA

CALGARY—Fisk Tire Service Ltd.  
EDMONTON—Alberta Wheel Distributors, Ltd.  
MONTREAL—General Auto Equipment Ltd.  
TORONTO—Wheel & Rim Co. of Canada, Ltd.  
VANCOUVER—Wheels & Equipment, Ltd.  
WINNIPEG—Ft. Garry Tire Service Ltd.



# Tough Going Through Gravel and Goo

When you get off the concrete in Georgia, the going's rugged, as George Cook, fleet superintendent for the Hardaway Contracting Company of Columbus, Georgia, can tell you. "Our operation is a tough one" he told Charlie Moon of Harris Automotive Service, Inc., Budd Wheel distributors in the Atlanta area. "Invariably the trucks are overloaded and that slopping and grinding through mud and gravel murders tires. We're barely averaging 21,000 miles per set."

Moon got together with E. B. Rogers, Columbus wheel dealer, worked out new wheel specifications for Hardaway's trucks, and persuaded them to try wide base rims on one small dump truck.

Now the whole fleet is changed over.

George Cook reports: "Since the change to wide base rims, sidewall damage is very rare, blowouts no longer plague us and the same tires now give us 36,000 miles."

That's the kind of imaginative and skillful service you can expect from a Budd Wheel distributor. Whether you know you have wheel trouble or not, call up the one near you (listed in the column next to this page) and have him inspect your fleet. He knows the importance of the right combination of wheels and tires, and with Budd Wheels, the *only* complete line with the new tapered bead seat advanced rims, he can meet your need exactly. The Budd Company, Detroit 14.

Look  
for this  
label (in blue,  
red and gold)  
on the rim  
of  
every genuine  
Budd Wheel





## Detroit Dispatch

Continued from Page 6

increase. In contrast, employment by U. S. railroads increased by only 60,000 since 1941 to a total of about 1.2 million, and freight hauled jumped only 20 per cent to 2.8 billion tons, showing that trucks now haul three times as much freight annually as all U. S. railroads. But the railroads still have higher "ton-mile" totals.

### Ford Boosts Used Truck Sales

Ford is now vigorously pushing the most

comprehensive used truck merchandising program in its history. Used truck sales objective this year calls for an increase of 73 per cent. The program offers dealers such aids as suggestions for reconditioning, salesman training, appraisal, advertising, and display.

### Fast Trailer Brake

Kelsey-Hayes has under development an electrically-actuated mechanism that insures initial braking pressure on the rear-most axle of truck-trailer combinations before the tractor brakes come into play. The device has been tested for more than two years on the company's own trucks and

has been running for sometime on large test fleets. It does not reduce braking power, but rather speeds it up and increases it, the company says. The usual procedure is to get initial snubbing action on rear axles by cutting down the truck brakes, but that is not necessary with the new device. It is reported that the device may be used on any kind of tractor-trailer combination.

### Pontiac Sedan Delivery

Pontiac Div. of General Motors currently is getting back into production of its sedan delivery model which had slowed to a dribble while a few appearance changes were being made. Advertised delivered price at Pontiac is \$1832 for the 8 and \$1765 for the 6. It has leather seats and headlinings and is available in a number of pastel colors, as well as the passenger car colors. Cargo area is 7 x 5 ft and distance between wheel housings 4 ft 7 1/4 in. The company has had several orders for the units equipped with Hydra-Matic drive and radio. Low pressure tires are standard equipment.

### More PRA Brake Tests

The brake testing program of the Public Roads Administration may include further tests on front wheel brakes for vehicle combinations of five or more axles to see if front wheel brakes are needed. The winter driving hazards committee of the National Safety Council, which ran several tests last year in Wisconsin, has voted to drop the front wheel tests. An interesting item in connection with front braking is a report that Bendix-Westinghouse has perfected a front axle brake limiting valve, which it says will solve the problem of front wheel braking.

### A Questioning Look

Truck company service managers report that with labor and other maintenance costs at a high level, some fleet operators are looking more closely at outside maintenance programs from dealers or repair shops to replace their own fleet shops. There has been no definite trend yet, but a good deal of interest. Factors they are considering are high labor costs as a result of unionization, tying up of capital for parts inventories and loss from obsolescence, and cost of shop equipment.

### Service Business Down

Service business among truck dealers and other service establishments appears to have dropped off during the past few months. Factory officials believe that one factor is that many trucks now are out of service because of a falling off in business. Also they believe that there is much more deferred maintenance now than formerly because of restricted capital by some operators.

END

(Please resume your reading on P. 10)



# Unit Rating Plan Spurs Drivers

Continued from Page 69

in any single month, the next highest month and the preceding month. There is also a vertical string which is moved to the right each day and which represents a minimum standard mileage quota. For winter this is set at 300 miles per day and in summer, 350 miles.

Thus each driver can see at a glance just how he stands in relation to other drivers. Every other record on the board is a challenge and the system is built on man's natural instinct to see himself out front.

On a desk in the same room with the control board we keep a loose leaf note book with the Truck Operating Record (see cut, page 68) for each unit. Each time a driver comes in to check his board standing, we give him the opportunity to examine and discuss his unit's sheet with the transportation supervisor. Actually the board system means little unless considered with the operating cost of the unit. We never fail to remind a driver of a good record. We never mention a bad one. The driver sees that for himself.

## Fleet Mileage

At the bottom of the control board we plot the estimated or standard fleet mileage daily and for the month and against this the actual mileage. For this we use the same color system but different pegs.

One peg shows the greatest miles run by the fleet in any one month. Another peg shows the maximum miles run by the fleet the previous month. Still another peg records the next highest month in fleet mileage. Both estimated and actual mileage for the fleet is posted daily.

## Merit Plan Payoff

Getting back to the Merit Plan, I have already mentioned that each driver gets one merit for each 500 safe (no-chargeable accident miles). Thus a unit in the Pace Setter class, for instance might run 14,000 miles in a month earning 28 merits. Then at the end of the year a cash bonus is paid on the number of accumulated merits. If two drivers are assigned it is understood that the bonus for the unit is to be split.

We have had several bonus plans under this Merit System and have more

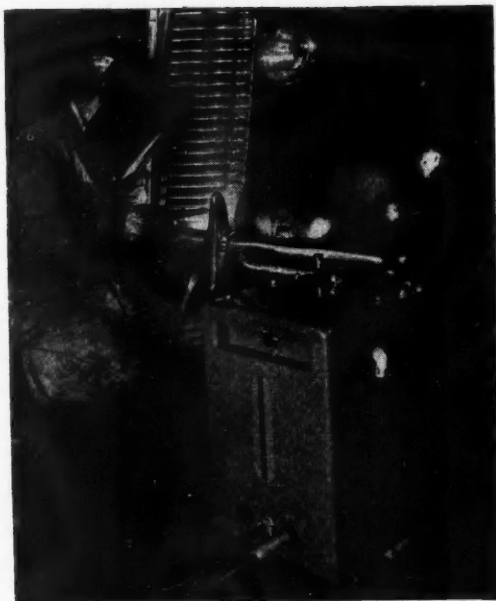
to try. However, if a driver is a safe one and is in the top group of a dozen or 15 of the best drivers, he can earn a cash bonus of \$150 per year.

## 12 Gigs Per Year

In addition to both the Unit Rating System and the Merit Plan, both of

which recognize good driving practices, we also have a gig system which singles out poor driving practices. Unlike the usual connotation of the word gig, our gigs are awarded at the beginning of the year and it is the loss of gigs which hurts a driver's record. Each driver gets 12 gigs at the beginning of the year and if a new man joins our organization during the year he is given one gig for each remaining month.

Gigs are lost in strict accordance  
(TURN TO NEXT PAGE, PLEASE)



want  
an easy-  
working  
**ELECTRODE?**  
then try this  
swell  
**AIRCO No. 90...**

it's ideal for all-around garage work  
where good weld appearance is a MUST!

The Airco No. 90 is an all-position AC-DC shielded-arc mild steel electrode — ideal for use on all types of jobs around the garage involving the fabrication or repair of mild steel parts and equipment . . . and it is easy to use.

Ask your local Airco Dealer about Airco No. 90 today! Also ask him about his complete line of arc welding electrodes and machines — for either AC or DC application — that he can deliver immediately from stock.

In addition to this prompt service, your Authorized Airco Dealer offers you top quality merchandise, at lowest possible prices . . . so, get in touch with him today — he'll be only too glad to give you more information about Airco No. 90, as well as other welding products he has available.



This Emblem Identifies  
Your Airco Dealer

## AIR REDUCTION

Offices in Principal Cities

Plus A Nationwide Dealer Organization

Headquarters for Oxygen, Acetylene and Other Gases...Carbide...Gas Cutting Machines,  
Gas Welding Apparatus and Supplies...Arc Welders, Electrodes and Accessories

## Unit Rating Plan

Continued from Page 145

with the rules prescribed in a Gig Memorandum (reproduced on page 68) which is self explanatory. When a driver is hired the Gig System is fully explained. He knows what infraction of rules will result in loss of gigs and he also knows that if he loses

all his gigs he is automatically out of a job. This is one rule from which there is no appeal.

When a driver loses a gig he is called in and the transportation supervisor explains the matter fully to him. In nine out of 10 cases the driver agrees. In the past five months only four gigs have been lost and all of these by the same driver.

I would like to go back here and make a statement regarding both the loss of gigs and the gaining of merits. Safe drivers are usually good drivers

with low operation cost. A driver, through poor driving, regardless of what kind of poor driving, *works himself out of a job*. We give less work to the weak man with few merits. By weak we mean costly.

Working cooperatively with the local driver's union, we train and counsel the weak driver, working him into a higher group and a better driver. If we fail, the driver usually resigns of his own accord. I think the men will agree with this statement: There is no worry about losing a job. In two years of this sort of cooperation and under our plan no driver has lost his job because of our plan. And our plan has made a better driver out of a lot of good drivers.

### Road Patrol

TO check drivers we have our own road patrol which is made up of:

1. The operations manager.
2. The transportation supervisor and 2 driver bosses.
3. The owner.
4. The shop superintendent.

We require one full 8-hour day of road patrol each week. This is divided as to area and time, depending on our operations and reports which we have received.

We also employ a firm of safety engineers who make weekly and monthly road checks and furnish the management with a weekly report.

### The Proof of the Pudding

WE consider the percentage of gross which is used for operating expenses as our operating ratio. Our unit rating system was put into effect last in 1945. The following is our operation (TURN TO PAGE 148, PLEASE)

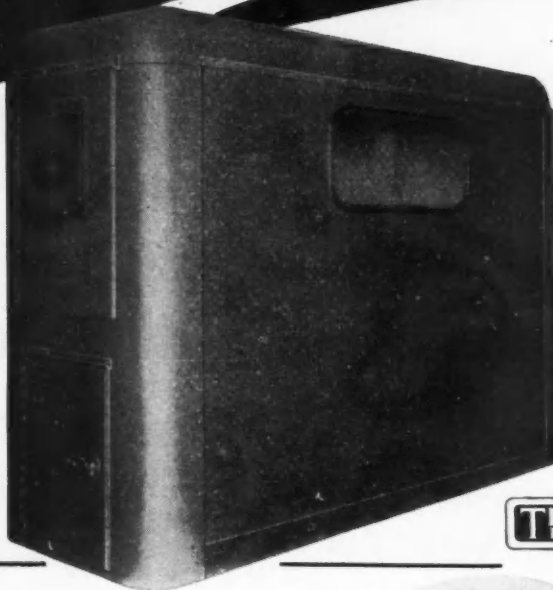
### Bricks by Special Delivery



4000 bricks ride in style thanks to this combination of a Mack EQSW six-wheeler and Daybrook hoist and body. Packaged in lots of 1000 each the bricks are delivered to the truck by special equipment. A center dividing gate holds half the load in place if a split delivery is desired

COMMERCIAL CAR JOURNAL, July, 1946

## TIMPTE *Sleeper* CAB



TIMPTE  
DENVER

The new TimpTE Sleeper Annex was engineered, designed and manufactured to conform with the requirements and desires of Drivers and Owners—

#### STRESSING

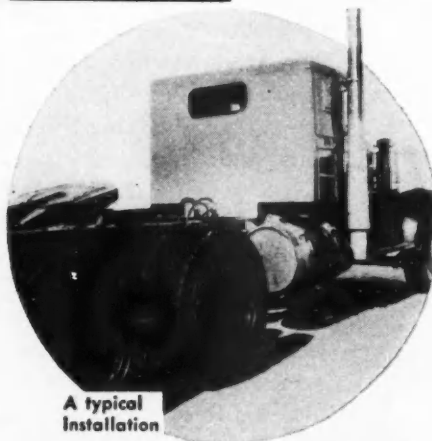
SAFETY—Above All

COMFORT—For Driver Efficiency

RUGGED—For Safety and Long Life

NO DRAFT VENTILATION—For Health

STREAMLINED—For Appearance and Less Wind Resistance



A typical  
Installation

• Write for full Information

**TIMPTE BROS., INC.**  
Manufacturers

Cherry 6686 • LONG DISTANCE 96  
EAST 40TH AND YORK STREET  
DENVER 5, COLORADO, U.S.A.



# PLAN NOW

**-to cut down  
next Winter's  
traffic tieups!**



## Learn how WALTER SNOW FIGHTERS

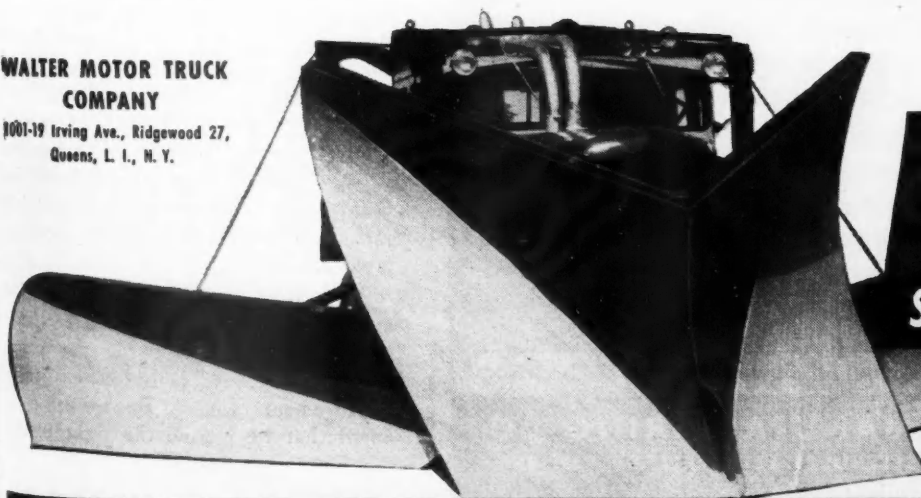
- provide greater speed, power, traction**
- keep roads open in worst storms**
- control any snow or ice conditions**
- reduce snow removal costs**

**I**F you anticipate buying additional snow removal equipment, now is the time to plan, budget and place your orders. Get the facts on big, fast, powerful, rugged Walter Snow Fighters. Learn the many important advantages offered by the Walter 4-Point Positive Drive, torque proportioning differentials, tractor type transmission, suspended double reduction drive and specially designed, high capacity plows, wings, scrapers and hydraulic equipment.

Your Walter distributor is ready to give you full details. Write us for literature.

### WALTER MOTOR TRUCK COMPANY

1001-19 Irving Ave., Ridgewood 27,  
Queens, L. I., N. Y.



# WALTER

4-POINT POSITIVE DRIVE  
**SNOW FIGHTERS**

## Unit Rating Plan

Continued from Page 146

ating ratio from 1944 through 1948:

1933.....	98	32/100
1945.....	100	1/100
1946.....	98	66/100
1947.....	95	12/100
1948.....	92	0/100

In studying these figures it is important to consider that from 1944 to 1948 our maintenance expense has risen over

40 per cent, our transportation expense has gone up 35 per cent, and to offset this we have received but 20 per cent increase in tariff.

For this same period, 1945 to 1948, our accident record shows:

1945—52 Chargeable accidents (chargeable according to National Safety Council's definition) with 15 units and a total mileage of 1,636,451.

1946—33 Chargeable accidents with 23 units and a mileage of 1,168,120.

1947—13 Chargeable accidents with 28 units and a total mileage of 2,493,574.

1948—3 Chargeable accidents with 36 (starting the year) units and a total mileage of better than 3,000,000 miles. In 1948 we placed third in the National A.T.A. contest for our division.

On road patrol reports our system is also showing improvement. When we started the Unit Rating program, we were averaging 4 bad reports out of every 10 reports turned in (these reports from road patrol, safety engineers, highway department, and police). It should be explained that we consider a bad report one where the state or city safety rules are being violated as well as company rules.

The 1949 report total shows 135 reports in three months with but one bad report, and that for speeding.

Our Unit Rating system has aroused deep interest in the whole organization. We know we have gained in loyalty, good service, and in customer good will.

We are now operating on a much more rigid schedule. In the 24-hour period we are utilizing our equipment better than 80 per cent. Our tachograph charts show that we are making change-overs in less than 10 min. as against 20 min. to 1½ hrs. in 1945. (A change-over is where one driver turns his equipment over to another driver at a division point.) For example: Jones, No. 33, pulls into Burley. Smith is waiting at the fuel pump. Smith takes the equipment and drives out of Burley for Boise. A change-over has been completed.

In order to drive economically a driver must drive safely. The two go hand in hand. Speed costs more in fuel, rubber, oil and wear. Speed costs more in insurance, damage to public property and to equipment through accidents. In order to make a good showing speed must be held down. Hold down speed and you hold down accidents. The pattern follows when you apply this rule to other safety factors. A very poor driving report from the Road Patrol might cost a driver his job. It is certain to cost him accumulated merits.

After only a brief period of trial and error on Unit Rating our whole organization is strong for the plan. There are changes to be made. Many improvements needed. But we are confident that we are on the right track.

END

(Please resume your reading on P. 70)

COMMERCIAL CAR JOURNAL, July, 1949

## HAULS 12% MORE PAYLOAD with FABCO DUAL DRIVE



This Ford F-7 rig is loaded with a 24 net ton load of Ponderosa Pine. Says F. A. Johnson, owner and wholesale lumberman of Twain Harte, California, "This truck, equipped with a FABCO Dual Drive and a 2-axle pull trailer, hauls an average pay load of 24½ tons per trip legally. This is three tons more than I was able to haul with the former heavy-duty truck which I previously had on this operation, because the unladen weight of the other truck was so heavy." These extra three tons mean a 12% increase in pay load.

If you want to increase pay loads on your hauling operations, investigate the application of FABCO equipped medium duty production model trucks as they apply to your particular problem. May we send you a copy of our Dual Drive Bulletin?

29 Years in this Business

**Fabco**

**F. A. B. MANUFACTURING CO.**

1249 SIXTY-SEVENTH STREET - OAKLAND 8, CALIFORNIA

Dual Drives - 6 and 10 Wheel Units - Logging and Highway Trailers - Frame Extensions



don't forget  
to check on  
**BENIUM**\*

## IT'S THE KEY TO SHORTER, SMOOTHER STOPS

There is a very important difference in brake blocks, and it's summed up in one word—*Benium*. You will see for yourself when you install rugged Bendix Eclipse Brake Blocks on your vehicles. Braking is smoother, shorter, more positive. But, best of all is the fact that there are hundreds of extra stops in every long-wearing set. The result is longer periods between brake servicing jobs—profitable extra road time. So, don't forget to check on *Benium*. Better still, do it now—install Bendix Eclipse Brake Blocks on your fleet and see the difference they make.

**BENIUM\*** Heat-resisting material is the secret ingredient developed by the Marshall-Eclipse Division of Bendix and used exclusively in Eclipse brake linings and heavy-duty brake blocks.

## Eclipse Brake Blocks

A PRODUCT OF **Bendix**

### Greatest Name in Braking!

MARSHALL-ECLIPSE DIVISION OF  
TROY, NEW YORK





ramp opening being .010 in. at 20 deg, cam ramp closing .015 in. at 30 deg.

Timing gear drive is by means of a steel gear on the crankshaft end and an aluminum alloy gear on the camshaft meshing with it.

THE intake and exhaust valves are actuated from the camshaft by means of substantial pushrods having

cylindrical ends which fit into a socket in the adjusting screw in the rocker arm at the upper end and within the tappet at the lower end. Attention is drawn to the fact that the tappets are castings of barrel type with an open

end to permit seating of the pushrod in the bottom surface inside the tappet.

Intake valves are conventional, made of Silchrome and seating directly in the seat machined in the head metal. Incidentally, a Neoprene washer is provided at the valve spring end to prevent leakage of oil from the upper chamber into the valve guide. Valve guides are of alloy iron for durability.

On the exhaust side, valves are of sodium-cooled type and faced either with Eatonite or Stellite, depending upon the source of supply. At the same time an exhaust valve seat insert is employed and this is Eatonite or Stellite faced.

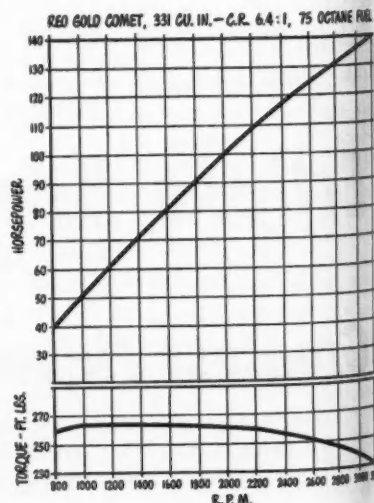
Intake valve head diameter is 2-in.; throat diameter,  $1\frac{3}{4}$  in. Intake seat angle is 30 deg, and intake lift .420 in. Intake timing—open 5 deg BTDC, close 55 deg ABDC. Exhaust head diameter is 1.800 in., throat diameter  $1\frac{5}{8}$  in. The exhaust seat angle is 30 deg, lift .420 in. Exhaust timing—open 50 deg BBDC, close 10 deg ATDC.

#### Casting Features

IT will be noted that the intake manifold is an integral part of the head casting.

The cylinder block is an integral casting of alloy iron, and is compact and extremely rigid in construction. It may be noted that the crankcase parting line is right on the main bearing center line, the oilpan being a stamping. This design imposes still greater

Power chart shows steady rise in power output, unusually level torque curve.



### NEAPCO 1500-1600 SERIES

## POWER TAKE-OFF JOINTS



Neapco Products Inc.



Pottstown, Pa.

# Valves in Head

duty on the cylinder block structure and it will be found that a row of horizontal ribs is employed on each side in the region directly above the parting line to provide added rigidity.

The powerplant suspension system is of three-point type with two brackets on the flywheel housing at the rear and two closely spaced feet under the front end.

## Cooling System

REO is justly proud of the cooling system designed into the engine. The water pump is arranged to direct the coolant through a cast passage in the side of the block to the distribution area at the center of the block. From this central point coolant is distributed forward and rearward. Generous water passages are provided around the wet sleeves and also about the intake passage, mentioned previously. As illustrated, liberal provision also has been made to cool around the valve seats. This is done rather ingeniously by a series of jets or directional vanes near the top surface of the block and located on both sides of the valve ports. The object of this arrangement is to force jets of coolant under pressure, simultaneously on both sides of valve ports, thus tending to develop rotary flow which assures thorough scrubbing of hot surfaces by the fluid.

The coolant stream leaves the block

*Details of the "wet-sleeve" cylinder used in Gold Comet engine. Neoprene seals keep lower end watertight*



through a water manifold mounted on the side, leaving the head at three points.

The main thermostat for controlling coolant temperature is mounted in the water manifold. It is not of by-pass

type but there is a by-pass tube in the system to permit constant bleeding at all times,

## Lubrication Details

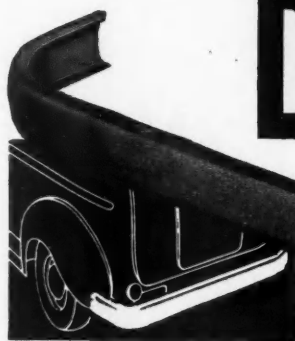
THE engine is designed for full pressure lubrication at 50 psi by means of the sump-mounted Gerotor oil pump. Cleanliness of the circulated oil is assured by the Floto screen through which all oil to the pump must pass. Oil is fed through the crankshaft, in conventional fashion, to all main and

(TURN TO NEXT PAGE, PLEASE)

**NASH  
BODY-GARD**

# BUMPERS

**CUSTOM BUILT FROM HI-TENSILE STEEL**  
*Channel Type Construction*



**FOR NEW EQUIPMENT OR REPLACEMENT ON TRUCKS, BUSES, COACHES AND ALL TYPES OF COMMERCIAL TRUCK BODIES**

Stamped from rugged HI-TENSILE steel, Nash Body-Gard Bumpers are designed to fit and protect the front and rear of all types of trucks, truck bodies, buses and coaches. Due to flexible tooling and equipment, they can be made to your exact specifications and at economical prices. The style and size Body-Gard Bumper you order can be shipped promptly.

Body-Gard Bumpers meet a need long felt by the entire industry. They are styled to improve any vehicle's appearance and are built to provide maximum protection with minimum weight.

Send for folder which describes how the Body-Gard line will help you solve your bumper problems.

## 5 FACE WIDTHS

3½", 4½", 5½", 6" and 6¾" wide

## 3 STYLES

REGULAR  
With 3¾" end form

FULL  
With end form up to 7½"

WRAP AROUND  
End form as deep as required

**PROMPT DELIVERY • LOW COST**

# NASH BROS. COMPANY

*Manufacturers of Nash Tire Carriers*

**PAYNE STREET AND DEWEY AVENUE, EVANSTON, ILLINOIS**

## REO Engine

Continued from Page 151

con rod bearings. Oil also is fed to the camshaft bearings and to the gears at the front end. Cylinder wall lubrication is by means of squirt holes drilled angularly in the upper surface of the rod big end. Lubrication to the overhead valve mechanism is supplied under pressure by means of intermit-

tent feed through a slot in the rear camshaft journal.

### Standard Accessories

THE ignition system consists of 6-volt heavy duty units of latest type supplied by Delco-Remy. As illustrated, the heavy duty distributor is driven through a flexible coupling at the upper end of the shaft, its function being to absorb torsional vibrations from the camshaft line. The distributor cap incorporates a dust shield for weather-proofness. Champion J-6, 14 mm

spark plugs are used, with a weather-proof cover at each one. The coil is mounted on the side of the block near the distributor.

The duplex type 1 1/4 in. downdraft carburetor is supplied by Zenith and Carter; and there is an oil bath air cleaner. The fuel pump is mounted at the lower edge of the block on the left away from exhaust manifold heat. Provision is made for installation of a Bendix-Westinghouse air compressor when specified. In this case it is driven from a separate V-belt drive at the front end, involving the use of an auxiliary pulley off the crankshaft end. Water pump and generator are driven by a double V-belt. Provision is made for a tachometer drive, taken from the gear driving the oil pump and distributor.

Crankcase ventilation is of road draft type with a simple bent tube leading from the push-rod cover. It has a baffle inside to provide a labyrinth seal against loss of oil. On the valve gear cover there is a large sized breather serving the dual role of an air inlet as well as oil filler.

A large oil filter of interchangeable element type is mounted directly to the block, as shown, at the lower edge of the crankcase, with the element below the bracket. There is also provision for an oil cooler—without plumbing—if desired. It can be attached directly to the plate which may be seen immediately above the oil filter installation in the transverse section. The plate actually is in the center of the block at the point where the cooling system enters the block and provides an adequate mass of water for circulating about the oil cooler.

A King-Seeley velocity-type governor is standard equipment.

END

(Please resume your reading on P. 92)

### Service-Master Body



Particularly suited for service and maintenance trades is this new all-purpose "Service-Master" body by McCabe-Powers Auto Body Co., St. Louis. Weather-tight compartments on either side may be individually locked. For use with 1/2, 3/4 or 1-ton chassis



## Yours—EVERY DAY!

### This Vital Data About Your Trucks

- when they got started in the morning.
- when they were working.
- when they were standing.
- how long they were idle — and why.
- was that Overtime necessary?

Look at the Servis Recorder chart above—note those "gaps" in the travel line, marked WHY. Each one shows up idle time—the truck wasn't running then. Were these delays justified, unavoidable—or—was someone to blame?

You want to know whether your trucks are losing valuable time now and then on their routes during the day—how much and how often.




The only accurate way to keep tab on all those delays, even down to 10-minute periods, is to attach a little **SERVIS RECORDER**; then the truck automatically acts as its own Time-Keeper! Write for full information. The Service Recorder Co., 1375 Euclid Ave., Cleveland 15, O.

## The Servis Recorder

Shows Busy and Idle Time... All Day





## VELVETOUCH CLUTCH PLATES ARE FIRST WITH TRUCKERS FOR HEAVY DUTY HAULING

Performance-proven in the toughest "road test" in the world—the Indianapolis 500—Velvetouch clutch plates and clutch facings are continually setting new records for cost-conscious truck operators. Being all-metal, Velvetouch plates give you added mileage with fewer adjustments . . . extra safety through positive friction uniformity . . . and easy installation. And Velvetouch won't rot in oil like ordinary asbestos!

It will pay you big dividends in velvet-smooth operation . . . and in greater day-to-day dependability, to investigate the proven advantages of all-metal Velvetouch clutch plates in terms of your own truck fleet. Contact your jobber, or write the nearest S. K. Wellman Co., branch for complete details.

### THE S. K. WELLMAN CO. WAREHOUSING CENTERS

ATLANTA . 119 14th St., N. E.  
BOSTON . 171 Brighton Ave.  
CHICAGO . 2800 S. Parkway  
CLEVELAND . 1392 E. 51st St.  
DALLAS . . . 3407 Main St.  
LOS ANGELES 1110 S. Hope St.  
PHILADELPHIA 97 E. Montana St.  
PORTLAND 636 N. W. 16th Ave.  
SAN FRANCISCO 424 Bryant St.  
TORONTO, ONTARIO, CANADA  
The S. K. Wellman Co., of  
Canada, Ltd. 2839 Dufferin St.

Govt. Office — 1101 Vermont  
Ave., N.W., Washington, D.C.

FOR BRAKE AND CLUTCH USE

# Velvetouch

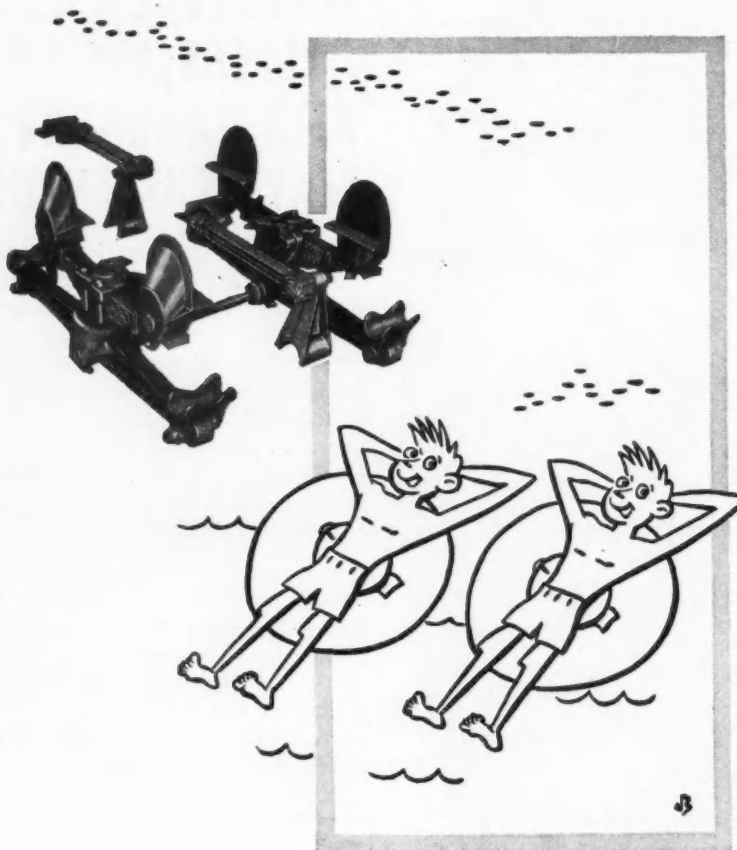
25 years of service • 1924-1949

**THE S. K. WELLMAN CO.**

1374 East 51st St. • Cleveland 3, Ohio



*"Follow the Leader"*



## A SMOOTH LEVEL RIDE—

*All cargo is assured a "life of ease" on a Hendrickson-equipped rig*

The equalizing beam and the ball and socket joints in the Hendrickson tandem combine to reduce the effects of each bump 50%.



Reduced road shock means a smoother cargo ride and more profit for the operator.

A SMOOTH LEVEL RIDE—

**HENDRICKSON MOTOR TRUCK COMPANY**

8001 West 47th Street • Lyons (Chicago Suburb) Illinois

## Answers to Brain Teasers

(See Page 22)

### Find the Towns

These you should have found without too much trouble:

AKRON	MIAMI
DENVER	RENO
DETROIT	TRENTON
FLINT	TROY
KOKOMO	UNION

And these may have been a little tougher:

DENTON	MINOT
ILION	REVERE
LIMA	TORONTO (OHIO)

### Terminology Spelling

- |           |                |
|-----------|----------------|
| 1. VACUUM | 9. PNEUMATIC   |
| 4. TANDEM | 10. AUXILIARY  |
| 6. DIESEL | 12. COMMUTATOR |
| 7. TAPPET | 14. PYRENE     |

Note: In case it fooled you, CARBURETOR (number 2) is as correct with two T's as it is with one. Look it up.

### Money on the Line

The dime.

### Motorcycle Messenger

He will travel 1200 miles before he gets back to the terminal, and if he goes after the southbound truck first he can deliver both messages in 11 hours, otherwise it would take him 13. Here's how it works out. (The arrows indicate direction of motorcycle):

If he goes after southbound truck first:  
If he goes after northbound truck first:

If he goes after southbound truck first:

Truck Miles South	Motor-cycle Miles	Hours from Terminal	Motor-cycle Miles	Truck Miles North
30	.....	1	.....	45
60	←60→	2	.....	90
.....	.....	3	.....	135
.....	.....	4	60→	180
.....	.....	5	120	225
.....	.....	6	180	270
.....	.....	7	240	315
.....	.....	8	300	360
.....	.....	9	360	405
.....	.....	10	420	450
.....	.....	11	480	495
.....	.....	12	540	540
.....	.....	21	←540	.....

If he goes after northbound truck first:

Truck Miles South	Motor-cycle Miles	Hours from Terminal	Motor-cycle Miles	Truck Miles North
30	.....	1	.....	45
60	.....	2	60→	90
90	.....	3	120	135
120	.....	4	180	180
150	.....	5	←60	.....
180	.....	6	120	.....
210	.....	7	180	.....
240	←60	8	.....	.....
270	120	9	.....	.....
300	180	10	.....	.....
330	240	11	.....	.....
360	300	12	.....	.....
390	360	13	.....	.....
420	420→	14	.....	.....
.....	.....	21	.....	.....

Note: The motorcycle leaves the terminal one hour after the trucks; hence, it is on the road one hour less than shown in the table.

# Here's BIG News!

## SHELL'S NEW 3-BARREL PLAN

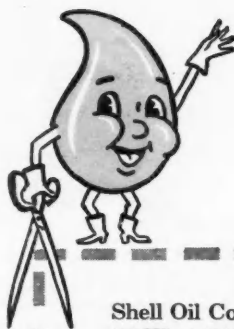
1. Cuts down-time for vehicle lubrication
2. Assures foolproof lubricant application
3. Cuts costs . . . simplifies stocking

Shell Rotella Oil for crankcase use—the oil that embodies new discoveries of Shell Research that CUT ENGINE WEAR . . . that EXTEND TIME BETWEEN ENGINE OVERHAULS.

The Shell Lubrication Engineer will be glad to explain to you the cost-cutting advantages of the Shell "3-Barrel Plan." *Mail coupon for full information.*

\*For Hydraulic Transmissions and Worm Drives, get specific recommendations from the Shell Lubrication Engineer.

## LUBRICATION



Shell Oil Company, Incorporated  
50 West 50th Street, New York 20, N. Y. or  
100 Bush Street, San Francisco 6, California

Please send me the particulars of Shell's new  
"3-Barrel Plan" for better fleet lubrication.

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_



# CCJ's New Product Review

Continued from Page 52

normally duplicating actual tire stretch and permitting accurate balancing of low-pressure tires, as well as conventional types. Dimensions of the Seal Line combination model are: 43 in. high; 24 in. wide; 32 in. long. Weight is 516 lb. H. C. Schildmeier Co., Indianapolis, Ind.

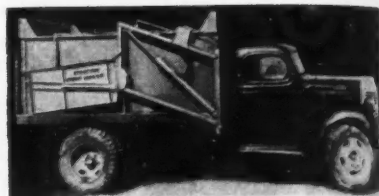
## P70. Heavy-Duty Tire

A new rayon cord tire built especially for high speed, long distance service in over-the-highway hauling is announced by The B. F. Goodrich Co., Akron, Ohio. The "Super Highway" tire is made in sizes from 8.25-20 ten ply rating through 11.00-

24 twelve ply rating and operates under the standard load and inflation schedule for the various sizes. The company says that the tire has a flatter design permitting greater road contact. The non-skid depth of the tread averages 13.5 per cent deeper than standard tires and the crown thickness averages 21 per cent more.

## P71. Hydro-Loader

Almost any truck becomes a self-loading truck to all intents and purposes when it is equipped with a Stratton Hydro-Loader. Here is a unit that cuts down loading and unloading time. The hydraulic mechanism is actuated from the power take-off. By finger tip control the operator raises or lowers the loader platform to the



spot desired, from the ground level to a height of 7 ft or over, depending on the model. When not in use, it lies flat against the side of the truck. Two models are available—No. 750 with a lifting capacity of 750 lb and Model 1500 with a capacity of 1500 lb. Stratton Equipment Co., Cleveland, Ohio.

## P72. 3-Way Hydro-Crane

Here is a floor crane, and a truck loading crane and a towing crane as well. The active operating unit can be easily detached from the portable

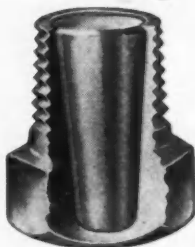


base on which it normally operates as a floor crane, and then it can be quickly mounted on the bed of a truck, into a heavy-duty sleeve, where (TURN TO PAGE 162, PLEASE)

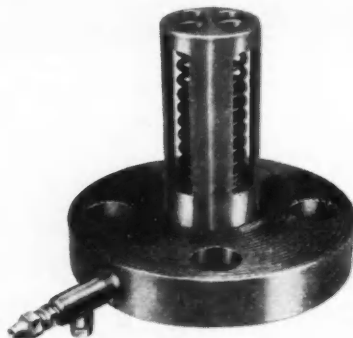
# Make Butane Tanks Safe with S&J INTERNAL VALVES



To surround the delivery of L.P. Gases with the optimum of SAFETY many prominent marketers equip their storage tanks as well as their truck tanks with S. & J. Hydraulic Internal Safety Valves. These valves, installed inside the tanks are normally in a closed position under spring tension. They are actuated by the hydraulic pump shown at the left. Should an accident rupture the hydraulic line while the tank is unloading, the release of hydraulic pressure instantly closes all valves which are open. Yes, hydraulic safety valves give you maximum protection with POSITIVE operation.



The tiny fusible plug shown above is inserted in tees in the hydraulic lines to the valves. The fusible element melts at 165°F. Should a fire occur while the tank is discharging, or accompany an accident, the heat melts the fusible element which releases the hydraulic pressure in the line and closes any valves which may be open and discharging.



The S. & J. Hydraulic Internal Safety Valve is mounted in the discharge opening of the tank. With the exception of its heavy steel base flange, it is entirely within the tank.

**SHAND & JURS CO.**

BERKELEY, CALIFORNIA

NEW YORK

CHICAGO

HOUSTON

LOS ANGELES

SEATTLE

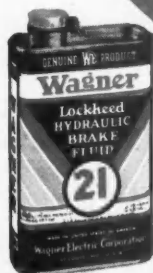
**SHAND & JURS**



For *SAFETY'S SAKE* Reline with CoMaX...



**WAGNER CoMaX**  
gives longer wear in  
**HEAVY DUTY SERVICE**



**REFILL**  
with WAGNER LOCKHEED  
BRAKE FLUID



**REPAIR**  
with GENUINE  
WAGNER  
LOCKHEED  
HYDRAULIC  
BRAKE PARTS



The rugged, even-wearing quality of the friction material used in CoMaX Brake Lining makes it superior for *all* your fleet requirements. On your heaviest trailer jobs . . . or lightest pickups . . . there is a specific CoMaX lining to give you more quick, safe, smooth stops between each relining.

Available in rolls, blocks, slabs or cut segments, CoMaX provides *complete coverage* for all your lining needs from a single dependable source. Standardize on CoMaX to assure longer wear, greater safety and less "down time" for brake service on your fleet. Order from your local Wagner wholesaler today.

**Wagner Electric Corporation**  
6470 PLYMOUTH AVENUE, ST. LOUIS 14, MO., U. S. A.

LOCKHEED HYDRAULIC BRAKE PARTS and FLUID • NoRul  
CoMaX BRAKE LINING • AIR BRAKES • TACHOGRAPHS  
ELECTRIC MOTORS • TRANSFORMERS • INDUSTRIAL BRAKES

B49-1

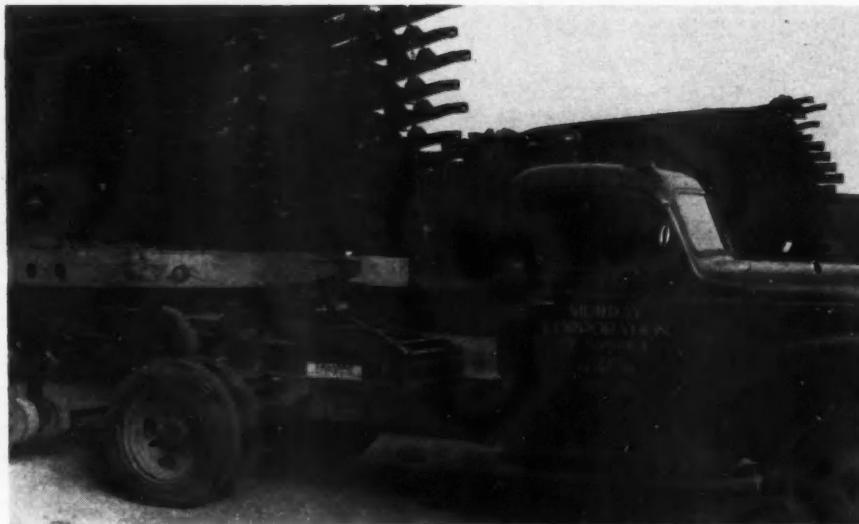
You can depend on WAGNER QUALITY because:  
WAGNER PRODUCTS ARE USED AS ORIGINAL EQUIPMENT BY AUTOMOBILE MANUFACTURERS

## New Products

Continued from Page 160

it has a 360-deg turning radius to load effectively on either side or back of the truck.

With the addition of tow guide rods and a floating bar, the 3-way model operates as a towing crane fully adequate to the demands of most towing jobs. Two capacities are available—one ton and two ton respectively. Stratton Equipment Co., Cleveland, Ohio.



## Are You Still Switching Your Trailers the Hard Way?

**A**RE you still cranking dollies when doing your yard switching? This antiquated practice has long since been abandoned by truckers who are interested in reducing labor costs. How? Simply by equipping their tractors with Pollard Fifth Wheel Hydraulic Platforms.

With a Pollard Platform on your tractor, the driver can move a parked semi-trailer from one location to another all by himself. No need to have an extra man to crank dollies. No need even for the driver to leave the cab.

This is because a tractor equipped with a Pollard 5th Wheel Hydraulic

## P74. Liquid Wax

A new liquid wax and cleaner is said to produce a hard glossy finish which will last six months or longer. Atolak, which eliminates the need for washing or pre-cleaning surfaces, contains safe, powerful detergents and cleaning agents that remove road haze, dirt and grime, quickly and easily, the manufacturer states. The protective finish is obtained from hard quality waxes and synthetic resins chemically treated to be resistant to weathering, salt spray, and

repeated soap and water washings. Atomix, Inc., Wilmington, Del.

## P75. Fountain Brush

The Buswash Fountain Brush now weighs 2¾ lbs.



Redesigned for easier and more efficient operation, the Buswash Brush is available in

either horsehair or Chinese bristles. The head is of hollow cast aluminum 5 in. in diameter and is replaceable on an exchange basis at a fraction of the original cost. Each brush is equipped with a heavy rubber gasket bumper, and the seamless steel tubing handle is 5 ft. long. The Flow City Brush Co., Minneapolis, Minn

## P76. Fast Charger

This new, moderately priced fast charger contains all features of the deluxe fast charger except before and after charge tests and the voltage regulator test.

The charging unit is identical with that in the deluxe model. Assembled



in a heavy-gage steel cabinet with durable enamel finish, the new Willard equipment provides thermostatic control to safeguard batteries and is capable of charging at a rate of 100 amperes. Slow charging facilities for from one to six 6-volt batteries have been incorporated in the new charger. Willard Storage Battery Co., Cleveland, Ohio.

(TURN TO PAGE 168, PLEASE)

**C. E. POLLARD CO.**

14571 Schaefer Rd., Detroit 27, Mich.

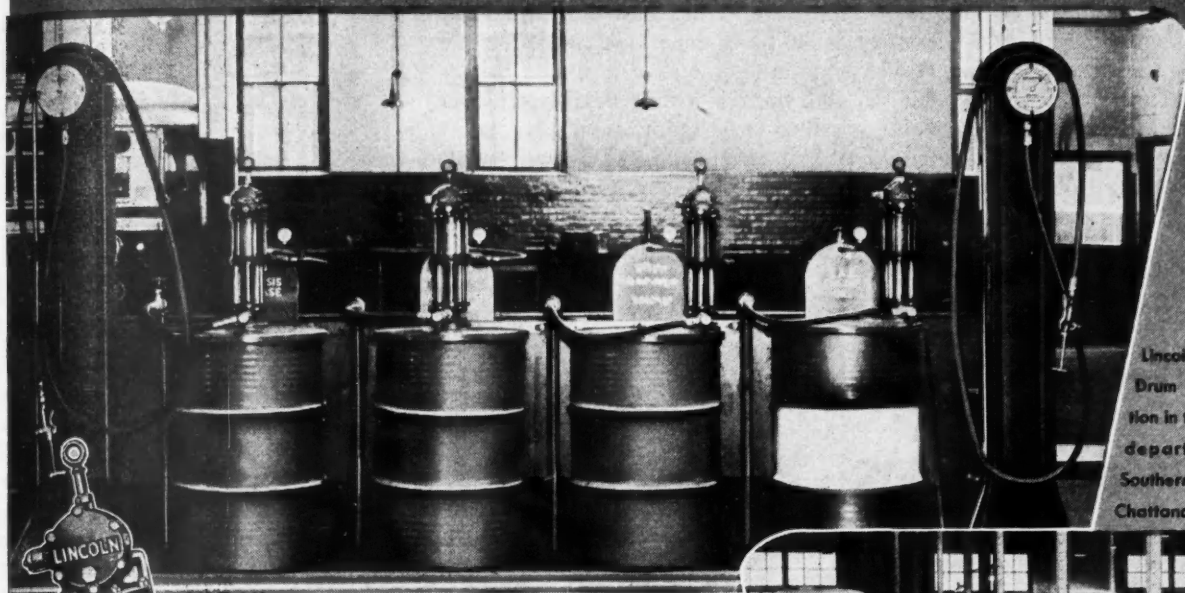
LITERATURE  
ON REQUEST



**5TH WHEEL  
HYDRAULIC PLATFORM**



# Lincoln HEAVY-DUTY LUBRICATING EQUIPMENT



Lincoln Heavy-Duty Drum Pump installation in the lubrication department of the Southern Coach Lines, Chattanooga, Tenn.

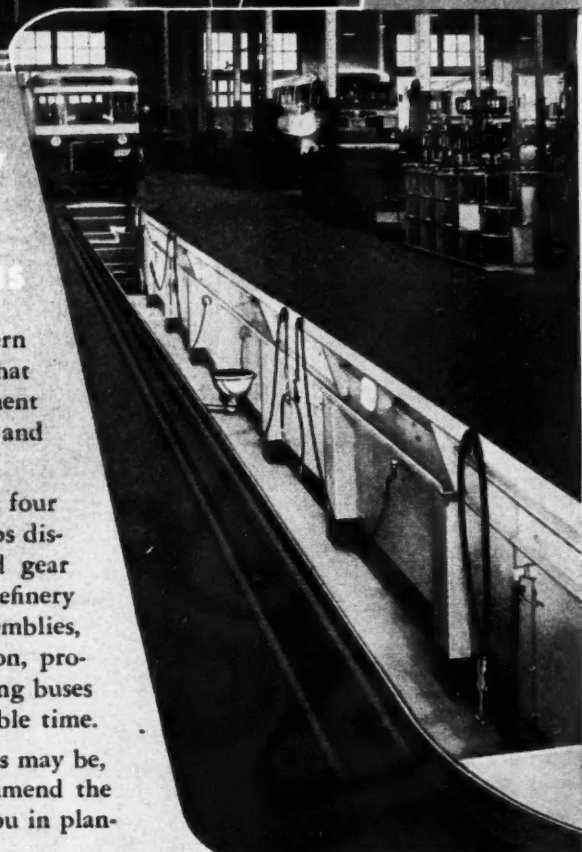
## Lowers Maintenance Cost, Saves Man-Hours, and Reduces Road Breakdowns

Like hundreds of large fleet operators, Southern Coach Lines—Chattanooga, Tennessee, find that Lincoln Heavy-Duty Lubricating Equipment saves them many maintenance man-hours and helps to decrease road breakdowns.

In their "over and under" pit installation, four Lincoln Heavy-Duty, Air-Operated Pumps dispense chassis lubricant, motor oil, and gear lubricant direct from 400-lb. original refinery containers, through pipes to hose assemblies, all within easy reach for fast operation, providing an efficient method of lubricating buses thoroughly, and in the shortest possible time.

Regardless of what your requirements may be, your Lincoln Wholesaler can recommend the individual units you need or help you in planning a complete department.

Lincoln Heavy-Duty Pumps are designed to give dependable operation under the severe conditions encountered in fleet maintenance service.



**BULLNECK Surface Check Grease**  
Fitting . . . the modern fitting with the ball in the top.

• • • • • PIONEER BUILDERS

**ST. LOUIS**  
**LINCOLN**

LUBRICATING EQUIPMENT • • • • •

LINCOLN ENGINEERING COMPANY • 5703 NATURAL BRIDGE AVE., ST. LOUIS 20, MO.

## New Products

Continued from Page 162

### P77. Off-Highway Tire

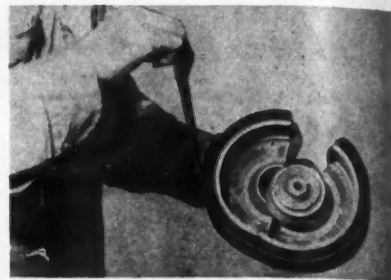
This Rock Lug Logger, a new off-the-road truck tire, has been designed for all off-the-road operations such as strip mining, quarrying, logging, and construction work. The new self-cleaning tire has heavy, chip-proof, S-curved lugs for maximum traction. The Pennsylvania Rubber Co., Jeanette, Pa.

### P78. Split Drum Sander

This buffer drum, the "Cone-Loc Drum Sander," has been developed to permit use of less expensive standard strip abrasives. It is a split drum, cushioned with rubber, the halves of the drum being locked into a solid drum by a cone type washer. It's light weight makes it highly adaptable for use with a flexible shaft as well as on a stationary arbor.

Standard width abrasives, available in roll form, are wrapped around the drum and secured into place by

pins that recede out of the way when the cone washer is tightened down. During buffing, polishing or grind-



ing operations the wheel never loses diameter and never needs dressing. American Diamond Saw Co., Portland, Ore.

## PRESENTING 3 Rugged Champions THE Scott-Atwater HYDRAULIC AXLE JACKS

Car, truck or bus—if the highway can carry it, Scott-Atwater can lift it! Yes, there's a Scott-Atwater axle jack for every job. And into each of them, we pack plenty of muscle and overload capacity. We engineer them to lift loads to twice their lowest height... we build them of malleable iron and top-grade steel. Better keep all three models in stock. For information, write Dept. B-7.

#### SERVICE AND BUMPER JACKS, TOO!

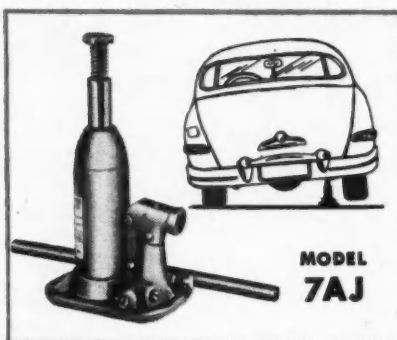
A safer, easier-to-use hydraulic bumper jack (Model 136; 1½ tons), and our tougher, longer-lasting garage jack (Model K; 2 tons).

**Scott-Atwater**  
MANUFACTURING CO., INC.

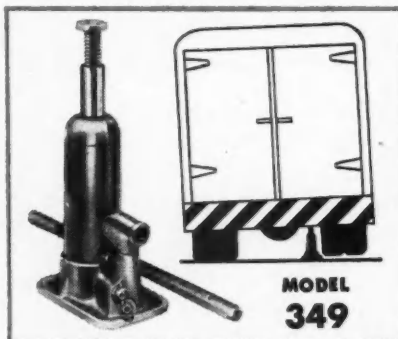
MINNEAPOLIS 13, MINN.



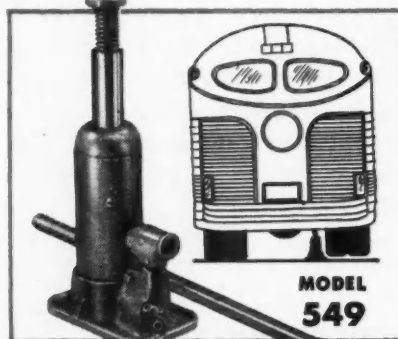
MAKERS OF OUTBOARD MOTORS • HYDRAULIC AXLE JACKS • BUMPER JACKS • SERVICE JACKS



**LIGHTWEIGHT CHAMPION** Lifts 1½ tons, weighs in at 7½ pounds.



**MIDDLEWEIGHT CHAMPION** Lifts 3 tons, weighs 16 pounds.



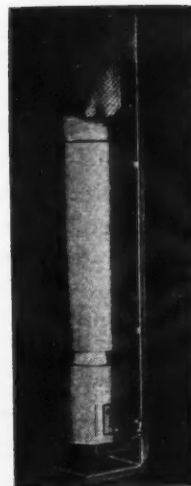
**HEAVYWEIGHT CHAMPION** Lifts 5 tons, weighs 18 pounds.

### P79. Skid Control Tire

The new Penetred skid control tire is said to provide year round faster starting and quick, safe straight line stops, with more tire mileage. Over 5000 tempered steel claws are imbedded in the tread rubber during the treading process. These claws cut through ice and snow in winter, and grip on slippery road film in summer. Penetred Corp., Marshfield, Wis.

### P80. Cargo-Guard Heater

Protection of perishable shipments from freezing for two to five days without refueling is made possible by the Cargo-Guard automatic bottled gas heater for trucks and trailers.



The heater is rated 20,000 Btu/hr and burns bottled propane gas, which is supplied from two 20 lb. cylinders enclosed in a carrier suspended beneath the body of the vehicle.

The heating unit is secured to the inside wall of the van and is controlled by automatic thermostat and pilot safety valve. It is placed in operation by lighting an automatic pilot and setting the thermostat at the desired temperature. When heat is needed, a metered flow of fuel is automatically supplied to maintain the selected temperature. Stampings, Inc., Davenport, Iowa.

END

(Please resume your reading on P. 65)